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International Handbooks of Population 11

John F. May  
Jack A. Goldstone *Editors*

# International Handbook of Population Policies

 Springer

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# **International Handbooks of Population**

Volume 11

**Series Editor**

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College Station, TX, USA

The *International Handbooks of Population* offer up-to-date scholarly summaries and sources of information on the major subject areas and issues of demography and population. Each handbook examines its particular subject area in depth, providing timely, accessible coverage of its full scale and scope, discusses substantive contributions for deeper understanding, and provides reliable guidance on the direction of future developments.

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John F. May • Jack A. Goldstone  
Editors

# International Handbook of Population Policies

 Springer

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## Foreword

Since the mid-twentieth century, the world has experienced unprecedentedly rapid and pervasive demographic changes, including rapid population growth, declines in mortality and fertility, changes in age structures, rapid urbanization, and increasing flows of international and internal migrants. All these developments have potential positive or negative social, economic, health, environmental, and political consequences and hence are an appropriate subject of population policy. Unfortunately, many aspects of population policy have been controversial and the subject of political and academic disputes about what constitutes a problem and what to do about it.

As a result, the focus of international population policies has evolved over time with major fluctuations and reversals in the level of concern about demographic trends. From the 1950s to around 1980, the international discussion was dominated by rapid population growth in the less developed world and the feasibility and desirability of implementing family planning programs. This period was followed in the 1980s and 1990s by a reversal of concerns leading to the widely held view that population growth was not a major problem. However, early in the twenty-first century, a broader population policy agenda evolved that included not only a return of concerns about population growth but also about a range of other issues such as population aging, below replacement fertility, depopulation, demographic dividends, international migration, rapid urbanization, and the role of population in reshaping the environment.

In the 1950s, rapid population growth in the less developed world and its potential adverse effects on development in poor societies rose to the top of the global policy agenda. In the aftermath of World War II, many countries struggled to rebuild their economies and poverty was widespread. The world population stood at 2.5 billion, but a newly released UN projection, expecting the world's population to exceed 6 billion by 2000, was greeted with alarm for its likely impact on exacerbating poverty and hunger in the less developed world and on the depletion of natural resources. Malthusian concerns that ever-growing numbers of humans posed a threat to long-term human survival by exhausting limited natural resources resurfaced. Large famines in Asia in the 1960s reinforced this concern, as did the oil crises of the 1970s. By the late 1960s, a strong consensus had developed in international development policy circles on the imperative to reduce the high population growth rates of the less developed world. Many finance ministers and development planning experts

realized that rapid population growth would require large investments in education, health services, housing, agriculture, and infrastructure just to keep up with population growth, thus leaving too few resources to substantially increase per capita income and standards of living.

The dominant response to these concerns was the implementation of voluntary family planning programs. Their goal was to assist women in achieving their reproductive goals and in avoiding unplanned births and abortions. Starting in the late 1960s, and throughout the 1970s and 1980s, governments that introduced such programs received generous international funding and technical support from donor countries and the newly created [United Nations Population Fund](#) (UNFPA). This international family planning movement flourished from the mid-1960s to the mid-1990s. The emphasis on voluntary programs was justified by survey research demonstrating that many women wanted to limit childbearing as well as by experimental studies confirming that women would accept contraception. The invention of the modern intrauterine device and the oral contraceptive pill around 1960 greatly facilitated the provision of contraceptive services. The early successes of such programs in several East Asian countries (e.g., South Korea, Taiwan, Singapore, and Hong Kong) encouraged other countries to follow in the 1970s and 1980s. Unfortunately, a few countries considered their demographic situation to be so urgent that they resorted to more drastic measures. China implemented a near-universal One-Child policy in 1978 with harsh penalties for having more children, and India's Emergency-era government of the late 1970s adopted a coercive sterilization program. These efforts were and are widely condemned, and coercion of any kind is now considered an unacceptable violation of human rights.

In the 1980s and 1990s, a major shift in the international consensus about population policy occurred which largely reversed the earlier emphasis on reducing population growth. This change was due to several new developments, including the continued opposition to contraception and/or abortion from conservative groups (e.g., the Catholic church); the spread of the Green Revolution that greatly increased crop yields in Asia, bringing optimism about the global food situation; the failure of earlier predictions of worldwide famine and the depletion of natural resources to materialize; and the claims of a number of economic studies that population growth was not a major problem and that family planning programs were not cost-effective. Perhaps most important was the rapid decline in fertility in Asia and Latin America, suggesting that global population growth would soon level off. In addition, population policies were tainted by the fierce opposition to China's One-Child policy and fear of coercion; this led to an emphasis on women's reproductive health and rights at the 1994 Cairo conference and a low priority for the issue of population growth. At the same time, much of the more developed world was experiencing a drop of fertility to below replacement levels, and the HIV/AIDS epidemic raised mortality, especially in sub-Saharan Africa. This cluster of issues moved population growth and family planning from a position of high priority in international development programs in the 1970s and 1980s to one receiving little attention by 2000. Funding for family planning programs dropped in the late 1990s after rising



rapidly from the 1960s to the 1990s. The UN's Millennium Development Goals adopted in 2000 did not mention population or reproductive health. Population had fallen off the global agenda.

However, from the turn of the century onward, interest in population in its wider dimensions re-emerged. There are four general reasons for this reversal. First, the HIV/AIDS epidemic – while serious – had a smaller effect on population growth than was expected in the 1990s. Epidemiologists who had predicted an eventual decline in the population of Africa were proven wrong, as the massive anti-retroviral therapy campaigns implemented in the early 2000s prevented this outcome and the HIV/AIDS epidemic's impact on population growth turned out to be modest. Once this became clear, the UN projection of sub-Saharan Africa's population, which in 2004 had predicted an increase from 0.7 billion in 2004 to 2 billion in 2100, was revised upward a decade later to 4 billion in 2100. This enormous future increase in population size was widely considered a major obstacle to development for the continent. International funding for family planning programs again became widely available, especially for African countries.

Second, introducing family planning programs in sub-Saharan Africa turned out to be more difficult than in Asia and Latin America, because of the continent's strongly pronatalist culture and low levels of socioeconomic development. However, successful family planning programs were implemented in the early 2000s in Ethiopia, Malawi, and Rwanda, where adoption of contraception was rapid. The rationale for family planning was greatly strengthened by the development of the theory of the demographic dividend, which made clear how a reduction in fertility could strongly promote economic development. These successes encouraged other countries to implement programs. Regrettably, however, most countries did not act as vigorously as these leaders, and a number of governments (e.g., in Nigeria) took little action.

Third, below replacement fertility in the more developed world became entrenched, contrary to the predictions of some demographers. The implication of this development is the massive aging of the population in future decades with steadily rising old-age dependency ratios. In the most rapidly aging countries (e.g., Italy), projections expected the ratio of workers to retirees to approach one by mid-century. This outcome would be disastrous for pension and healthcare systems. In response, many governments have acted over the past two decades to bring their pension and healthcare systems more into long-range balance (e.g., by raising the age at retirement and reducing benefits), but the problem is far from solved and further actions (some already put into law) are needed. Governments are also taking family support measures to encourage childbearing, but these efforts have only had modest effects. Population aging will be a significant threat to future growth in living standards in the more developed world.

Fourth, growing numbers of international migrants – legal and illegal – have become a controversial political issue. The stock of international migrants reached 272 million in 2019 (3.5 percent of the global population), an increase of 51 million since 2010. Europe hosted the largest number of international migrants (82 million), followed by Northern America

(59 million) and Northern Africa and Western Asia (49 million). The other regions have been net senders of migrants during 2010–2020. Forced displacements across international borders are also still rising. The global number of refugees and asylum seekers increased by about 13 million between 2010 and 2017, accounting for close to a quarter of the increase in the number of all international migrants. Northern Africa and Western Asia hosted around 46% of the global number of refugees and asylum seekers, followed by sub-Saharan Africa (close to 21%). As the receiving countries in Europe and the USA are increasingly reluctant to accept more migrants, and immigration policies have become more restrictive in recent years, concern has grown regarding the rapid growth of population in nearby developing regions, which provides increasing numbers of potential migrants.

This volume provides a comprehensive and informative overview of the multidimensional issues that now face international and national policymakers around the world. Given the complexity of these issues and the diverse groups affected, government interventions aimed at minimizing unfavorable demographic developments have been and remain controversial. Government leaders and academic researchers sometimes disagree on what, if anything, to do about rapid population growth, too high or too low fertility levels, large flows of migrants, and other demographic trends. This timely and wide-ranging book provides a wealth of valuable insights and thoughtful commentary on these controversies and provides a pathway toward building greater consensus. A wide audience ranging from interested laypersons to students, specialists, and policy makers can benefit from reading this *Handbook* or the parts that are most relevant for them. This volume is a welcome addition to the growing literature on population policy options, which have become increasingly complex and yet essential for improving human welfare.

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## General Introduction

In 1900, the world's population was estimated at 1.6 billion people. One hundred years later, it had grown to 6.1 billion people – the same figures, only reversed! As we prepare this *International Handbook of Population Policies* in 2022, the global population is nearing 8 billion people; it is poised to reach nearly 10 billion people by the mid-twenty-first century (see Chap. 1: “Contemporary Population Issues” of this *Handbook* [Goldstone & May, this volume]).

While population trends in the next 30 years are broadly fixed by demographic momentum – the fact that the majority of people who will be alive in 2050, and who will have children in the next three decades, have already been born – there is considerable debate over how demographic trends will play out from 2050 to 2100 and beyond. For some, the world's population will “peak” long before the end of this century due to rapidly falling fertility in most regions of the globe, and even depopulation in a number of the more developed countries (e.g., Russia, South Korea, Japan). For others, the population peak will be reached later, only in the early twenty-second century, because of the still high fertility levels in dozens of countries, especially in sub-Saharan Africa but also parts of the Middle East and South Asia. As we write today, fertility is still especially high (over 3.5 children per woman) in many of the least developed countries, from East Timor to Niger. Sub-Saharan Africa (SSA) – with most of the large countries that exhibit exceptionally high fertility – is the demographic wild card of the next 80 years. This region's future population trajectory will determine when global population growth ends, but remains the biggest question mark in global growth (Goldstone & May, this volume).

This worldwide population increase during the past 300 years was triggered by a process known as the demographic transition, which can be defined as a shift from very high levels of crude birth rates and crude death rates to very low rates of both. The transition process started in Britain and France in the eighteenth century. It spread to the rest of Europe and the territories of European settlement in the nineteenth century and reached the less developed countries in the twentieth century. The transition was just beginning in many less and least developed countries in the late twentieth century, particularly in most SSA countries (Goldstone & May, this volume).

Most often, the decline of mortality is the first phase of the demographic transition and results in faster population growth because more people are surviving. Infant and child mortality typically fall the fastest, enabling far

more children to survive to adulthood and have children of their own. This phase is followed by the onset of fertility decline, a second phase of the demographic transition, which brings about major changes in the age structure, with relatively fewer young people and relatively more active adults (Goldstone & May, this volume).

The demographic transition has played a central role in the creation of the modern world, changing the size of families, the relationships between men and women, and the sizes of nations. The transition is usually accompanied by rapid urbanization, as the growing population spills out of agriculture into the cities. Rapid population increase and urbanization, along with an explosive surge in the youth population, can lead to challenges for housing, employment, education, and government, often increasing the risks of protest and conflict. When the transition is completed, with both crude birth and death rates quite low and roughly equal, countries may experience other population and development imbalances. If fertility in a country drops below replacement levels (usually 2.1 children per woman) or as it has in some cases, to extremely low fertility levels (e.g., South Korea with less than one child per woman), it leads to negative population growth, population aging, and depopulation. Today, situations of low fertility (below replacement level) and very low fertility (around 1.3 children per woman) affect about half of the world's population. This is due in part to the large size of China's population, a country currently experiencing very low fertility levels (Goldstone & May, this volume).

The distribution of population across countries and regions today is shaped by the fact that the demographic transition has *started at different times* in different places, and the *pace of the transition* has varied greatly across countries and continents. As a result, the current demographic patterns and trends of the roughly 240 countries and geopolitical entities of the world are very diverse, ranging from countries experiencing very rapid population growth to countries facing extremely low and even negative population growth. These different demographic evolutions also present new challenges, such as the need to create jobs for the youth bulge (a surplus of young people) in fast growing populations, as well as labor shortages and retirement funding issues in low and very low fertility countries (Goldstone & May, this volume).

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## **The Overall Context of Population Policies**

Demographic trends do not evolve in a vacuum, but are determined by a vast array of factors. These include contextual variables such as the level of economic development, health outcomes, and the environment (e.g., climate change and global warming) as well as such behavioral factors as gender relations, religious and cultural practices, and use of government services. Population patterns and trends in turn impinge on social and development issues, including efforts to improve the formation and preservation of human capital (education and health) as well as programs aimed at reducing poverty, gender inequality, and other forms of inequity.

Given the impact of population patterns and trends on a broad spectrum of socioeconomic and developmental issues, governments and public authorities have designed and implemented a wide variety of interventions to influence population trends. These are known as population policies – the use of the plural is warranted by the fact that such policies are often numerous and multifaceted. Population policies and interventions can be defined as “*actions taken explicitly or implicitly by public authorities, in order to prevent, delay, or address imbalances between demographic changes, on the one hand, and social, economic, environmental, and political goals, on the other*” (May, 2019: 877). The ultimate goal of population policies is to adjust the population size and age structure to the needs and aspirations of the people, in the context of their individual and collective capacities.

However, there is a sharply polarized debate about whether and how public authorities should intervene on population patterns and trends and, by implementing population policies and interventions, seek to correct the imbalances caused by the increase or decrease of the population and by changes in the age structure. Despite a rather large consensus in favor of population interventions, some scholars have argued that it might be better to let natural and self-regulatory mechanisms, if any, do their work (Demeny, 1986). Other researchers have questioned the effectiveness and even the usefulness of population policies (Vallin, 2016).

Nonetheless, there has always been a general consensus in favor of policy interventions to reduce mortality. Furthermore, recent decades have also seen the strengthening of arguments in favor of policies targeting fertility, both to promote voluntary family planning in countries with exceptionally high fertility and to promote more childbearing in countries with especially low fertility – though such policies continue to draw skepticism and opposition regarding their propriety and effectiveness. In addition, population distribution policies, that is, programs to relocate populations in order to reduce population pressure, and anti-immigration policies to limit or halt population movements, have been widely practiced, though highly controversial (see May, 2012).

It should be kept in mind that demographic trends are essentially the result of decisions people make as couples or as individuals, the overall aim being the achievement of household and/or personal goals. At the societal level, however, these individual decisions can have adverse or positive effects, which economists have labelled externalities. Negative externalities result when costs to society are out of line with those that are taken into account by individuals. For example, high fertility levels may bring wealth and power to some families, or be seen as necessary to give families options for support; yet, if all families maintain high fertility while resources are scarce, the result is to jeopardize the well-being of the community and its physical environment by depleting natural resources, causing deforestation in the case of agrarian societies, or aggravating unemployment, poverty, and chaotic urbanization in the case of more industrialized societies.

The presence of such externalities was a key rationale that led governments and donor agencies to promote the adoption of population policies aimed at

reducing high fertility rates in poor countries in the 1960s and 1970s, where it was feared that explosive population growth would bring impoverishment and block future development. A critical question, however, has been how to balance individual and societal freedom, rights, and responsibilities, that is, whether the adverse societal consequences were serious enough to warrant a curtailment of individual rights and freedom. Also, important to ask is how much population growth could be managed in a given context, or how much is necessary to maintain economic growth. In this respect, China's One-Child policy of 1979 – a policy that coerced people to have extremely low fertility, with long-term adverse effects on families (with single adult children having to support two parents and four grandparents) – is a noteworthy case of a population policy that has been roundly condemned as excessive (May, 2012).

Today, the world is demographically more diverse than ever. Effective population policy requires understanding the precise context of social wants and needs in particular societies and sub-societal regions, determining if population policies would help society meet those wants and needs, and then designing and implementing the right mix of policy interventions. While the world's population growth is slowing down, this overall trend masks wide variations. Most more developed countries, which are threatened by population aging and eventually depopulation, must address issues of sub-replacement fertility and immigration. In contrast, most less developed countries, whose populations continue to grow because of fertility well above replacement level and population momentum, need to complete their demographic transition while continuing to improve the socioeconomic status of their populations. Finally, the least developed countries, whose populations are still growing quite rapidly, especially in sub-Saharan Africa, would benefit from reducing their high levels of fertility in order to capture a first demographic dividend and eventually reach the status of emerging market economies (May & Guengant, 2020). Therefore, different regions have quite different demographic realities, and require different population policies to meet their goals (Goldstone & May, this volume).

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## **Outline of the *Handbook***

The goal of this *International Handbook of Population Policies* is to provide a state-of-the-art compendium on population policies and interventions across the world at this point in time, with a view toward guiding and improving future prospects of population policies and interventions.

The first section of this *Handbook* is entitled "Theoretical Foundations." It begins with a chapter detailing the demographic situation of the world, after which there are chapters presenting the general framework of population policies and the classical foundations of population policy. These are followed by chapters analyzing the relationships between population dynamics and four critical global issues: the burden of disease, economic development, the environment, and the sustainability of food supplies.

The second section of this *Handbook* is entitled “Empirical Evidence.” This section examines the range of population policies that have been designed and implemented in the various regions of the world: sub-Saharan Africa, the USA and Canada, Latin American and the Caribbean, West Asia and North Africa, South Asia, East Asia and Oceania, and Europe. This section also provides a history of the major international population conferences that have shaped population policies, and the national and international institutions that have been created to implement them.

The third section of this *Handbook* is entitled “Policy Levers and Modelling” and focuses on a presentation of the instruments of population policies and the models that have been used to design policies and gauge their efficiency. This section examines data collection; family policies; population and health policies in urban areas; the policies needed to capture demographic dividends; the linkages between family planning services and HIV/AIDS programs; the use of population projections; how to model policy interventions; the funding of population policies and programs; and, last but not least, evaluation – how to measure the effectiveness, efficiency, and impact of population policies.

The fourth and last section of this *Handbook* is entitled “New Policy Challenges.” It presents the new and emerging issues that population policies and interventions will need to tackle. This section examines population aging and public policy; pension policies; the contraceptive revolution; the role of abortion in population policies; international migration policies; the education revolution; the priority groups in population policies; the linkages between demographic dynamics, poverty, and inequality; the new bioethical and gender issues; population and national security; demographic sustainability; and, finally, the prospects for population policies and interventions.

The General Conclusion draws some general lessons and principles about population policies. The real value of this *Handbook*, however, lies in the richly detailed examination of population policies, their history, and their variation across countries and policy domains in the particular chapters. These details are the basis for understanding population policies and improving them in the future.

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## References

- Demeny, P. (1986). Population and the invisible hand. *Demography*, 23(4), 473–487.
- Goldstone, J. A. & May, J. F. (this volume). Chapter 1: Contemporary population issues. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- May, J. F. (2012). *World population policies. Their origin, evolution, and impact*. Springer.
- May, J. F. (2019). Chapter 34: Population policy. In D. L. Poston Jr. (Ed.), *Handbook of population* (2nd ed., pp. 875–899). Springer.



May, J. F., & Guengant, J. P. (2020). *Demography and economic emergence of Sub-Saharan Africa*. Académie Royale de Belgique.

Vallin, J. (2016, October 31). Are population policies effective? Article published on *N-IUSSP.ORG* (International Union for the Scientific Study of Population's online news magazine).

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**Part I**

**Theoretical Foundations**



Jack A. Goldstone and John F. May

## History

Ever since there have been states, rulers have been concerned with their populations. The first known count of population dates to 3800 BCE in Babylon, whose ruler ordered an accounting of the number of people, along with their livestock and livestock products, every 6 or 7 years (Australian Bureau of Statistics, 2021). In China, the Han dynasty left the oldest surviving record of a nationwide census (c. 2 CE), recording 57.7 million inhabitants living in 12.4 million households, also counting the population of cities, of which the largest was Chengdu, with 282,000 people (Population Reference Bureau, 2019). The Bible notes methods of counting the Israelites in both *Exodus* (30: 12–13) and in more detail in the appropriately named *Book of Numbers* (1: 1). In ancient Rome, a census was introduced even before the Republic, under the King Servius Tullius in the sixth century BCE. Under the Roman Republic, a state office known as the Censor was created in 442 BCE, whose duties included not only conducting the regular census – recording both the number of citizens and their property – but also making decisions over citizenship, the oversight of public morality, and monitoring state finances and public works.

The censors provided their data to the quaestors who then calculated the Roman budget, the number of soldiers to be required and provisioned, and the taxes on each citizen (Ancient Roman Odyssey, 2021). In enforcing “public morality”, the censors also implemented a population policy of sorts, ensuring that Roman families did not waste their resources and provided for their children in order to ensure the availability of farmers and soldiers. Later, under the Empire, Augustus (63 BCE–14 CE, Emperor from 27 BCE until his death) promulgated laws on marriage and on adultery with the objective of increasing fertility levels among the upper classes (Gardner, 1998).

Throughout subsequent history, rulers have conducted counts of their populations and property, from the *Domesday Book* in 1086 CE in Norman England to the modern censuses of today. Whom to count has always been an issue: citizens only, or all residents? Should they be enumerated by other identities (e.g., religion, ethnicity, national origins)? States have answered these questions differently, as they often become sharply politicized. In the U.S., whether racial groups should be listed on the census, and in what form (should a mixed-race category be included?) has been a point of contention since the country’s origins (Williams, 2006).

Census-taking remains contentious because population numbers are invariably tied to state policies. How much housing, transportation, welfare, pension, education, health, and other public spending is needed is often determined by

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looking at census data – especially considering where the population is located. In democracies, the voting weight of states and provinces is inseparable from their population counts. Estimates of future economic growth and tax revenues, as well as expenditures, rely on population projections. Counts of migrants (legal and estimated illegal) have always helped determine immigration policies.

While making such counts would seem to be an objective, scientific undertaking, as discussed in Chap. 21 (Buettner, [this volume](#)), and demographers and census officials usually strive for objectivity and scientific accuracy, policy decisions are inevitably affected by normative viewpoints: How large should a country's population be? Is a larger population to be preferred, or a smaller one? How rapid a growth rate can be handled? How much urbanization is desirable? How many migrants can be readily integrated into society? Population science thus becomes intertwined with politics, producing population policies, the topic of this volume.

The contributors to this *Handbook* address a wide variety of issues in population policies. They cover the means by which populations are counted and projections made for the future; concerns over how population changes interact with various social institutions and the economy; debates over the kinds of population policies that states can or should implement in various contexts; and examination of the consequences of various patterns of population change.

In order to introduce these issues, this Chapter presents the major population trends in various parts of the world, and shows why today's trends are presenting novel challenges for population policies.

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## From Precarity to Growth

For most of human history, population growth has been slow almost to the point of being invisible to contemporaries. For the world as a whole, we estimate that the human population increased from perhaps 250 million at the time of Christ (0 BCE) to 460 million in 1500 CE, an average

growth rate of roughly 4% *per century* (Livi-Bacci, 2017, Table 1.3). Stunning as it may be, it seems the entire world's population at the turn of the millennium was slightly more than the population of Brazil today; 1500 years later, it had grown only to a number less than today's combined population of Indonesia and Pakistan. In sum, the normal situation before 1500 was one of slow and precarious growth, subject to frequent spurts of growth but equally frequent disasters and reversals (including epidemics, e.g., the Black Death of 1346–1353). No wonder that the over-riding policy of rulers, always seeking to increase their recruitment pool for soldiers and their tax base, was to promote population growth.

However, from around 1500, population growth began to tick faster in most regions, especially across Asia (Livi-Bacci, 2017, Table 1.3). From 1500 to 1800, the first “globalization” brought Asian spices and preservatives to Europe, and New World crops to both Europe and China. Long-distance trade brought Baltic grain to Western Europe, and moved rice from Szechuan and the Yangzi delta all over China. Maize and potatoes provided cheap calories. Better and richer diets promoted growth across the Old World. This growth in Eurasia, however, was partially offset by the collapse of the Native population of the Americas under the burden of European colonial exploitation and the conquerors' diseases, while population growth in Africa was curtailed by slave raiding. By 1800, global population had probably doubled since 1500, reaching nearly one billion. Though still slow, population growth was now more perceptible (Livi-Bacci, 2017; see also Table 1.1).

Indeed, population growth started to accelerate dramatically after 1700. Global climate improved as the world emerged from the ‘Little Ice Age’, leading to better harvests and steady population growth in Europe, Russia, and China. Simple items like the availability of cheap soap (from imported palm oil and machine manufacture), and better water and sanitation turned cities from death traps into reasonable places for families to grow. Steam power meant ships and railroads could bring fertilizers to fields, and the produce of farms to cities, in large volumes at low

**Table 1.1** Estimates of Population and Annual Growth Rates by Major World Region, 1500–2020

	Population (in millions)						
	1500	1870	1913	1950	1973	2000	2020
Western Europe	57	188	261	329	388	422	455
Eastern Europe & ex-USSR	30	142	236	220	282	304	293
Asia-Japan	268	731	926	1405	2297	3741	4641
Latin America	18	40	81	169	308	522	654
Africa	47	90	125	228	393	811	1341
Sub-Saharan Africa	43	77	101	179	304	640	1094
WORLD	438	1272	1791	2536	3928	6143	7795
	Population growth rate (%)						
	1500–1870	1870–1913	1913–1950	1950–1973	1973–2000	2000–2020	
Western Europe	0.3	0.8	0.4	0.7	0.3	0.4	
Eastern Europe & ex-USSR	0.4	1.2	0.4	1.1	0.3	–0.2	
Asia-Japan	0.3	0.6	0.9	2.2	1.8	1.1	
Latin America	0.2	1.7	2.0	2.6	2.0	1.5	
Africa	0.2	0.8	1.6	2.4	2.7	2.5	
Sub-Saharan Africa	0.2	0.7	1.6	2.3	2.8	2.7	
WORLD	0.3	0.8	0.9	1.9	1.7	1.2	

Sources: May and Guengant (2020). For 1500–1913, see Maddison (2005). For 1950–2020, see United Nations (2019). For estimates of SSA population in 1500, 1870, and 1913, and of population growth rates for the corresponding periods, see May and Guengant (2020)

prices. In the twentieth century, chemical fertilizers and antibiotics further enhanced food supplies and lifespans. From 1800 (the time of the Industrial Revolution) to the early 1920s, global population doubled from one to nearly two billion. Then, population growth further accelerated, and the world's population tripled by 2000 to over six billion. From 1950 to 2000, the world's population grew at an average rate of 1.8% per year (Livi-Bacci, 2017, Table 1.3; see also Table 1.1). The United Nations estimates that global population will reach eight billion before 2025 (United Nations, 2019). Thus, in the course of two lifetimes, the world's population will have quadrupled from two to eight billion.

This increasing population growth developed through a process known as the demographic transition, which can be defined as a gradual shift from very high levels of birth rates and death rates to very low rates of both. The transition process started in Britain and France in the eighteenth century. It spread to the rest of Europe and the territories of European settlement in the nineteenth century. It reached the less developed countries in the twentieth century. The transition is still ongoing in many less developed countries

in the twenty-first century, particularly in sub-Saharan Africa (May, 2012).

Most often, the decline of mortality is the first phase of the demographic transition and results in faster population growth because more people are surviving. Infant and child mortality typically fall the fastest, enabling far more children to survive to adulthood and have children of their own. This phase is followed by the onset of the fertility decline, a second phase of the demographic transition, which brings about major changes in the age structure (as exemplified by the changing shape of the population pyramids, with relatively fewer young people and more active adults). The demographic transition is usually accompanied by rapid urbanization, as the growing population spills out of agriculture into the cities (Dyson, 2010). However, the demographic transition has started at different times in different places, and, furthermore, the pace of the transition has varied greatly across countries and continents. To a large extent, this explains the current demographic diversity among the roughly 240 countries and geopolitical entities of the world.

In the latter half of the twentieth century, this remarkable population growth gave rise to fears

that Rev. Thomas Robert Malthus's warning – that population growth would outrun food and other crucial resources – was about to be realized (see the discussion in Chap. 3 [Charbit, [this volume](#)]). The policies that governments pursued in this context were to promote economic growth, via private and state-led investments in education, infrastructure, industry, and research, in order to provide the population with food, housing, transportation, employment, and other necessities; and then to mitigate the burden of population growth by implementing policies to limit fertility.

While this sounds straightforward, the world has been deeply divided over how to pursue both policies. In regard to promoting economic growth, the mix between private market and government spending to provide education, infrastructure, industrial growth, and research has always been contentious. While most countries have settled on a mix, academics and particular countries at various times have advocated for anything from free-market fundamentalism, with minimal government, to having a dominant role for government in all arenas. Even *within* countries, we typically find some political parties in favor of free-market outcomes for most aspects of the economy, while other parties argue for a greater role of government in shaping the distribution of incomes and investments. Today, the world's two largest economies are polar opposites, with the United States claiming to be a model for the success of market-led growth, and China claiming to be a model for the success of government-directed growth. There is probably no hope to settle once and for all which approach is better, as both approaches, at various times and in various countries, have seen great success and major setbacks in achieving economic growth. What we can say, happily, is that by whatever means, in most of the world, despite the enormous and rapid growth of population since 1800, economic output has grown even faster. Thus, whether in Europe, China, the Americas, Africa, or other parts of Asia, by every measure of lifespan, health, and consumption, the world's population is far better off at the beginning of the twenty-first century than they were in the nineteenth.

To be sure, the growth has been uneven, so that incomes per capita in the United States and Western Europe are ten times those in many other parts of the world, and hundreds of millions remain in dire poverty. Improving the living conditions of the less-well off, and achieving a better balance of global consumption among different groups, remains a major challenge. Yet the over-riding fear of Malthus regarding population, that an exponential rise in world population, as has occurred since 1800, would outrun production of food and other necessities and produce rising poverty and a declining standard of living, turned out to be a mirage. The continued existence of poverty and inequality is overwhelmingly a result of issues in the distribution of global output, and not a failure of humanity's innovation and productivity to keep pace with population growth.

Helping this trend toward higher incomes per capita, since 1990 the world's rate of population growth has been slowing down, from about 2% per year to almost half that level by 2020 (see Table 1.1). In some countries, it has fallen far more drastically, as in China – from 1.3% per year in 1970 to 0.2% in 2020 – or Iran – from 2% per year in 1985 to 0.6% in 2010 (United Nations, 2019). This fall in growth rates has come about due to a striking decline in fertility.

As with policies to promote economic growth, policies to promote lower fertility have proven contentious. The technologies enabling fertility decline are diverse and have continually advanced since 1950, with notable innovations including oral contraceptives, implantable devices, better barrier methods for men and women, and safer surgical sterilization and abortion procedures. Yet societies around the world have differed in their views on whether the use of these technologies should be permitted or not, and if so, which are acceptable; which people should have access to these technologies and under what conditions; and on whether these methods should be simply made available on the market, or actively promoted, funded, and distributed by governments. Policies to enable or promote fertility decline have ranged from highly restricted (including total bans on abortion and

limited access to contraceptives) to government promoted (e.g., free distribution of contraceptives and making abortion and other methods available through government health clinics) to coercive (including India's forced mass sterilization program during the Emergency in 1975–1977, and China's One-Child policy from 1979 to 2015, which harshly penalized most families for failure to use contraception). As will be covered in more detail in several chapters of this *Handbook*, the history of policies to enable or promote fertility decline have been intensely contentious and politically fraught (Hardee, [this volume](#); Charbit, [this volume](#); Bado et al., [this volume](#); Bernstein et al., [this volume](#); Crane & Maistrellis, [this volume](#)). Over time, both within and across countries, an enormous range of policies, from restrictive to coercive, have been employed, often provoking major political conflicts.

What has become clear from this vast range of experience is that in most countries, harsh efforts to reduce fertility are unnecessary. When given the means for voluntary family planning, along with the education and autonomy to effectively access those means, women in virtually all societies around the world have opted to limit their family size, in order to invest more of their time and energy in themselves and to invest more resources per child (Bongaarts, 2020). This has not prevented political leaders from inserting themselves in the debates over what methods of family planning are acceptable, and whether any such methods deserve support.

Despite the huge conflicts over fertility policies, in most regions some mix of incentives, options, and family choices have resulted in declines in fertility, such that in countries from Ireland to India, fertility has fallen from once-high levels to below replacement. The one region of the world that has lagged in this shift has been sub-Saharan Africa, along with a few countries in Central America, the Caribbean, and South-central Asia. As will be examined in several chapters in this *Handbook*, the question of which policies will best help those countries join the global trend to smaller family sizes remains a key challenge (Bado et al., [this volume](#);

Bongaarts et al., [this volume](#); Turbat, [this volume](#)).

Nonetheless, the great focus of population policies from 1950 to 2000 – reducing the rapid pace of global population growth (especially in East and South Asia) – is now somewhat obsolete, given that half of the world's population already experiences below replacement fertility and that for countries comprising over three-quarters of the world's population, growth has already slowed dramatically and will likely cease within the next few decades. Instead, population policies for the twenty-first century need to grapple with entirely new problems. These are: (1) the dramatic slowdown and reversal in growth in most countries of the world, especially the rich societies, which must adjust to sharply declining work forces and huge numbers of seniors; (2) for countries that have achieved a marked reduction in fertility but are still stuck in a “middle-income” trap, how to take advantage of their changing demographics to accelerate their economic development; (3) for the countries that still have stubbornly high fertility, despite plummeting child and adult mortality, and therefore are experiencing very rapid population growth and unprecedentedly young societies, how to reduce their population increase so that they can better raise their education, investment, and incomes per capita; and (4) given that the aging of most rich societies and the vast youth population of poorer ones is creating enormously powerful pushes and pulls for international migration, how to manage and regulate such migration trends to best benefit both sending and receiving nations, while protecting the dignity and rights of immigrants, in the face of rising ethno-nationalism and hostility to immigrants.

In sum, the 240 countries and geopolitical entities of the world today vary not only in size and levels of economic development, they also vary widely in their demographic trajectories. Some are aging, some are extremely young, some are growing fast, others declining, and all have to determine their future in a deeply interconnected world, where changes in climate, technology, and politics will constrain their

population policies (May, 2012; May & Goldstone, [this volume](#)).

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## Growth Reversal and Population Aging

In 2021, India's fertility rate fell below replacement level (Economist, 2021). India joined East Asia, Europe, North America, and several other large developing countries, including Bangladesh, Turkey, and Brazil, in this reversal of fertility and eventually of population growth. While India just reached this level of fertility this year, and so will continue to experience decades of population growth due to still growing cohorts of young women who will soon enter their child-bearing years (the phenomenon of 'population momentum'), most countries of the world, and all of the largest countries, are on a trajectory to cease growth and begin population decline soon after 2050, if not before. Today's most populous country, China, is projected to reach peak population c. 2030, and then decline by 400 million (from 1.46 to 1.06 billion) by 2100. Japan's population has already started declining, and is projected to fall by 40% by the end of the century. Other countries with extremely low fertility, such as Germany, Italy, South Korea, Russia, Poland, Greece, and Spain, have also seen, or will soon see, the beginning of population decline, with projections that they will have anywhere from 30% to 50% fewer people by the end of the century. Even in Latin America, the fall of fertility in Brazil, Chile, and Colombia is such that their populations at the end of the century are projected to be 10% smaller than today. While the world's population will likely continue to grow modestly, due to continued rapid growth in sub-Saharan Africa (more about that below), for many countries in East Asia, Europe, and the Americas, the pressing reality of the twenty-first century will be population decline (United Nations, 2019).<sup>1</sup>

Population decline is not only a concern because it will reduce the labor force and place constraints on economic growth. It is because this decline, being driven by lower fertility bringing far fewer births, even as the existing population lives longer, will also create societies with a far larger proportion of seniors, and a smaller proportion of young people, than any societies have ever known.

The world's societies, over the last 70 years, have developed a physical infrastructure and social institutions designed for societies with a pyramidal population structure: many children, a larger proportion of working-age adults, and a smaller number of seniors (age 65 and older). For example, in Europe from 1950 to 2020, the proportion of total population of working age (15–64) was nearly constant at 67%. The percentage of children under 15 declined in this period from 26% to 16%, while the number of seniors (aged 65 and older) increased from 8% to 19%. Overall, however, the population was anchored by a solid two-thirds in their working years, and less than a fifth who were seniors. Only a tiny fraction, about 5%, were older seniors, age 80 or more. These proportions were almost identical in North America over this period, and even in Japan they were at about the same level (14% under 15, 67% 15–64, and 20% over 65) as late as 2005. China too, by 2000, had two-thirds of its population in their working age years, though with more children (25%) and fewer seniors (7%). Thus, the numbers of schools, homes, roads, trains, offices, hospitals, pediatricians, home care attendants; and the volume of pension transfers, medical payments, and infrastructure investments was geared to a growing population with a fairly stable age structure.

This is now changing rapidly. For Japan, which is in the vanguard of this change, having seen one of the earliest shifts to very low fertility, the percentage of population aged 15–64 has fallen from 67% to 59% in just the last 15 years. At constant fertility, it will drop to 50% by mid-century, and then slightly further, to 48% by century's end. Meanwhile, the portion of the population age 65+ is in the process of increasing from 20% in 2005 to 28% in 2020, 38% by 2050,

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<sup>1</sup> All regional and country population projections given in this chapter are derived from United Nations (2019).

and 42% by 2100. At that point, barring any dramatic changes in fertility, the number of Japanese will be about 40% fewer, and about the same number will be aged over 65 as the entire working age population from 15 to 64. The number of children under 15 years old, meanwhile, will have dropped from 18.8 million in 2000 to just 6.4 million by 2100, a decline of two-thirds over the course of the century.

While Japan is in the vanguard, other countries face similar changes. China, for example, is projected (assuming constant fertility) to see its working age population decline from one billion in 2020 to just 537 million by 2100, while the number of children under 15 will fall by half. At the same time, the number of seniors will double, tripling their proportion of total population from 12% to 34%. Italy is projected (again, assuming constant fertility and barring any massive immigration) to lose 40% of its total population by 2100, while at the same time seeing the portion of its population over 64 (40%) nearly match the entire population aged 15–64 (50%), while children are reduced to a rarity (10% of total population; or 3.5 million compared to almost eight million today).

It may of course be noted that these are just projections, and that 2100 is a long time in the future. That is true, but reflects a certain backwards-looking bias. 2100 is only 80 years in the future, or one lifetime ahead; it is now closer to us (in the year 2022) than the beginning of World War II, when the current world order was shaped. Moreover, these are not *predictions* of what will happen; they are *projections* of what the future holds *if* current population trends remain unchanged (the source and nature of projections is discussed in detail in Chap. 21 [Buettner, [this volume](#)]). Whether major changes to future mortality, fertility, and migration occur is in part subject to decisions taken with regard to population policies, as discussed in the remainder of this *Handbook*.

For most of the late twentieth century, demographers and population policymakers were far more concerned with the growth of population than its decline. Those in the rich countries neither foresaw the current sharp

decline in fertility in most of the less developed nations, nor the development of stable very-low fertility in their own. When the consequences of very low fertility started to become apparent, the initial reaction was that such vast changes in age structure were nearly inconceivable; that certainly fertility and age structure would revert back to something closer to the twentieth century norms. After all, Europe and the U.S. and Asia had all experienced baby booms in the 1950s and 1960s – surely population trends were merely cyclical and something like that would occur again (Easterlin, 1961)?

Yet, by the 1980s it had become apparent, as we will note in the discussion of high-fertility countries below, that fertility does not simply respond to economic swings or cycles. Rather, women's choices of how many children to bear depend on a complex mix of economic resources, alternative opportunities, and cultural norms regarding the status of women. In societies where women's education and professional opportunities are restricted and their status is boosted by cultural norms of child-bearing – whether in the suburbs of America in the 1950s or in the villages of northern India or sub-Saharan Africa today – then larger family sizes are likely to be embraced. However, where women have education and career opportunities, and have avenues to status attainment independent of family size, or even of marriage and family at all, then family sizes are likely to remain small (see the discussion on family policies in Chap. 17, by Wesolowski and Billingsley [[this volume](#)]). Moreover, in the context of modern societies where women have high education and autonomy, even restricting their career opportunities to encourage them to return to domestic life seems unlikely to restore large families. Indeed, in East Asian societies that fit these conditions, such as South Korea, Japan, and Singapore, the result has been women turning away from marriage and family altogether, leading to the very *lowest* observed fertility in the world. Indeed, South Korea's fertility recently fell below one child per woman (Korea Times, 2021).

It thus has become clear that fertility in Europe, Asia, North America, and other countries



with low fertility is not simply going to “bounce back” to earlier, higher levels. Instead, these countries must face the prospect that the traditional demographic pyramid will steadily transform to an inverted pyramid, with their workforce shrinking and older generations making up a much larger percentage of the population than children. Population policies for societies making this transition will have to respond with a mix of mitigation policies (efforts to stabilize the population size and age distribution by raising fertility as much as possible and increasing immigration) and adaptation policies (adjusting to the changes in population size and age structure by modifying physical infrastructure and institutions that manage resources and opportunities for the population).

Chapters 9, 13, 14, 25, 26, and 35 in this *Handbook* focus on policies to address population aging and low fertility (Jurczynska & Gribble, [this volume](#); Gietel-Basten et al., [this volume](#); Ambrosetti, [this volume](#); Mudrazija & Angel, [this volume](#); Turner, [this volume](#); Hara, [this volume](#)). These issues are now getting a great deal of attention from scholars and policymakers (Sobotka et al., 2020; Gietel-Basten et al., 2021). Numerous policy efforts and experiments have been undertaken to raise fertility in countries across Western and Eastern Europe, as well as in China. While policies to provide low-cost and accessible child care do appear to boost fertility, they have only been successful in bringing very low fertility up to replacement or near replacement levels, but have not brought back large families and population growth (Bergsvik et al., 2021; Tatum, 2021). Financial benefits seem to have little effect. It increasingly appears that the shift from fertility rates from two to three as “normal” to fertility at or below replacement levels will be a permanent element of the late demographic transition, inevitably accompanying the social transition of women from subordinates confined to the domestic sphere to fully active and autonomous actors in society.

Policies to mitigate the impact of population aging thus will have to focus more on adjusting to older societies. This will require investments to dramatically raise the productivity of younger

workers to better support older ones; and keeping older cohorts healthy and in the work force so that they require less support from government and younger generations. How to manage very large cohorts of age 80+, however, will be a different matter, as no existing society has any experience with this emerging phenomenon. Finally, whether and how much migration can mitigate population decline and aging is a highly contentious question, which we will return to below in our discussion of international and local migration.

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## The Demographic Dividend

One of the great successes of population policies has been giving more women around the world access to knowledge and methods enabling them to exercise greater control over their own child-bearing. When combined with an emphasis on rural family health and education for women, national support for family planning has been followed by dramatic declines in fertility in all kinds of countries: large and small; low, medium, and high income; Muslim and Catholic; African, Middle Eastern, Asian, and across the Americas.

However, while these results clearly improved the health of women and families, it was long debated whether such a slowdown in fertility would contribute to economic growth for society as a whole (Lee, 2009). Countries with high population growth have, after all, experienced periods of rapid economic growth, whether it was America during the 1950s and 1960s or China during the 1980s and 1990s.

Closer study of these cases and other growth episodes led to the formulation of a theory that linked fertility decline to an acceleration of economic growth and development: the theory of the ‘demographic dividend’. Bloom et al. (2003) noted that countries entering the demographic transition first went through a decline of mortality, during which population grew rapidly, followed by a decline in fertility, during which population continued to grow, followed by a period in which fertility fell to a level equal to, or below, mortality, creating a period of population stability, or with very low fertility, rapid

aging, and population decline. They found, when controlling for a variety of other factors, that the fastest growth in income per capita came during the first period of declining fertility. What they discovered to explain this connection was the effect of *changes in the age structure* on societies going through the demographic transition.

Early in the demographic transition, when mortality was falling but fertility remained high, the result was that societies grew younger, as more infants and children survived, and the child and youth cohorts grew very rapidly. Then, when fertility fell, the child and youth cohorts became smaller. However, the very large cohorts born early in the transition now entered their prime working years, leading to an explosion in the size of the workforce. In addition, at this point the number of seniors (age 65 and older) was also very small compared to the fast-growing work force. The result was that a very large proportion of society's population was in their most productive years, while relatively fewer were either dependent children or non-working seniors. This large increase in the prime working-age population, if they entered the labor force and were productive, gave a huge boost to output per capita for society as a whole. This in turn allowed workers to save funds for investment, which in turn drove productivity higher, in a virtuous circle.<sup>2</sup>

For example, during China's post-Mao boom, China enjoyed precisely such a demographic dividend. In 1975, China's working age population (age 15–64) constituted 56% of China's total population. By 2010, that had increased to 73%; the dependents (those too young or too old to work) thus fell from 44% of the population to just 27%. This meant that the total number of people of working age rose much faster than the

population as a whole: China's working age population grew from just under 600 million in 1975 to over one billion in 2010.

However, the demographic dividend does not derive simply from this favorable age structure by itself; rather, the favorable shift in age structure provides a mechanism and an opportunity for more rapid development. That is, if the new, larger young cohorts are better educated and more productive than earlier workers, then adding huge numbers of these more highly productive workers greatly increases the productivity of the workforce. Adding ever larger cohorts of more and more productive workers over several decades can completely transform the workforce, leading to an apparent economic "miracle".

But this opportunity must be seized when it arises; as we have seen, China's workforce is now on a path of rapid decline. While in China's case this sudden turn was exacerbated by the One-Child policy, in fact a similar decline in fertility has occurred elsewhere in Asia, with fertility continuing its decline to very low levels in Japan, South Korea, Taiwan, and Singapore. The demographic dividend is thus a great opportunity to accelerate economic development, but it must be taken advantage of at the critical time; otherwise, the opportunity passes as fertility continues to decline and the age structure shifts again, this time to fewer workers and much larger numbers of senior dependents.

While a large number of countries have achieved a substantial reduction in fertility – as we have noted, India, Brazil, and Turkey are now at or below replacement fertility – not all have taken advantage of their opportunity to cash in a demographic dividend. Doing so requires investments in education and training to prepare a more productive workforce, and in factories, offices, communications, and transport to employ them. Industries and services must be identified and supported that can absorb the large worker cohorts, reap their improved productivity, and reinvest their savings for further growth.

There are other striking success stories besides China: Vietnam, Mauritius, and Bangladesh are clear cases where declining fertility, slowing population growth, strong investment, and a resulting

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<sup>2</sup> Some authors have labelled this the "first" demographic dividend, arguing that as fertility further declines and workers move into their fifties and sixties, a second demographic dividend will follow, as workers in the top earning years increase their savings for retirement, thus creating a large pool of capital for further investment (Lee & Mason, 2006). Indeed, this second dividend in the more developed countries has often been larger than the first, where the savings have been productively invested (Mason, 2005).

demographic dividend are being realized. But there are many other countries in Africa, Latin America, and Asia that seem stuck in a “middle-income” trap, unable to make similar progress. The countries of the Middle East, for example, invested enormous resources in secondary and tertiary education in the 1990s and 2000s, only to find that when these cohorts emerged on the labor market, their economies could not provide them with jobs. The result was not a demographic dividend, but a series of political upheavals in the “Arab Spring” (Cincotta, 2012). The security issues that can arise from ill adjustment to such shifts and dislocations in population structures are examined in this *Handbook* in Chap. 34 Population and National Security (Sciubba, [this volume](#)).

For much of the less developed world, therefore, where fertility has come down from the earlier levels of five or more children per woman to the manageable level of two to three, the most pressing question is not how to reduce population growth. Instead, as such growth is slowing, the key question is how to benefit from that trend by gathering their own demographic dividend. This is the focus of Chap. 19 (Turbat, [this volume](#)). However, since realizing the demographic dividend requires a suite of policies regarding health, education, housing, and the economy, and must be adapted to the particulars of each country and region, many of the chapters of this *Handbook* deal in one way or another with the policies crucial to gaining the demographic dividend in various regions across the world (see Turbat, [this volume](#); Bongaarts et al., [this volume](#); Guzman, [this volume](#); Karim et al., [this volume](#); Visaria, [this volume](#); Bernstein et al., [this volume](#); Vučković & Adams, [this volume](#); Goujon, [this volume](#)).

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## Fertility Stalls and Extremely Young Societies

Although fertility has fallen dramatically in recent years in most countries and regions, there are a few places – mainly in sub-Saharan Africa (SSA), but also a handful of countries elsewhere, for

example the Pacific island states of Papua New Guinea, Solomon Islands, Vanuatu, and Timor-Leste; the Middle Eastern states of Yemen, Iraq, the West Bank & Gaza; and the central Asian countries of Pakistan, Afghanistan, and Tajikistan – where fertility remains high, at 3.5 children per woman or higher. Indeed, there are 25 countries where fertility in 2020 is estimated to be 4.5 or higher, led by Niger at nearly seven children per woman (United Nations, 2019).<sup>3</sup>

At the same time, thanks to better public health and nutrition, infant and child mortality in these countries has continued to decline. For example, in sub-Saharan Africa, from 1950 to 2020 infant mortality has fallen from 1.8 deaths per every ten live births to just 0.5, a decline of over 70%; in the same period child mortality (those aged 1–5) has fallen from three out of every ten live births to just 0.8. The combination of still-high fertility with much higher survival rates has produced very rapid population growth along with an explosion of youngsters.

For sub-Saharan Africa as a whole, in 2015–2020, the estimated average annual growth rate was 2.65% per annum, which would lead to a doubling of population every 26 years, or a four-fold increase if this growth rate is sustained out to 2070. In fact, while fertility for sub-Saharan Africa has fallen from 6.5 children per woman in the 1950s to 4.7 in 2015–2020, the effect of this decline on population growth has been wholly offset by the reduction in infant and child mortality. Thus, the current growth rate of sub-Saharan Africa of 2.65% per year is about the same as it was 50 years ago (2.68%), and is actually considerably *higher* than the region’s growth rate in the 1950s, when it was 2% per year.

In addition, the proportion of youth in these fast-growing societies is remarkable. The median age (the age for which half the population is younger, half older) for the world’s least developed regions was 19.3 years in 1950. For the countries of Middle Africa, it has now fallen to 17.3 years; for Niger, Mali, Chad, Angola, Somalia, and Uganda it is below 17 years. For

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<sup>3</sup> All fertility, mortality, and growth rate data in this section are derived from United Nations (2019).

these countries, children under age 15 comprise over 45% of the entire population (it is 50% in Niger).

The fact that population growth rates for these higher fertility countries has remained roughly unchanged for decades, while their populations have grown even younger, means that they need to change these trends if they are to reap the benefits of a demographic dividend.

As discussed in greater detail in Chaps. 2, 5, and 8 of this *Handbook* (Hardee, [this volume](#); Bongaarts et al., [this volume](#); Bado et al., [this volume](#)), several factors have sustained high fertility among these countries. First, many are smaller nations whose leaders saw efforts to limit population as damaging to their local influence, if not as blatantly imperialist efforts by Western countries to limit their growth. Second, most are tribal countries with a history of prizing childbearing while restricting women's opportunities for education and/or work outside the home (Korotayev et al., 2016). This has meant that families (even women) desire a large number of children. Combined with half-hearted government efforts to implement family planning programs, it is not surprising that their fertility has remained high. The impact of government measures to support women's and child health has been felt more on the reduction of infant and child mortality, as noted above.

The contrast between the steady decline in fertility in most less developed nations, and the persistence of high fertility in sub-Saharan Africa and a number of other countries despite advances in income and public health, has led scholars to discuss this "fertility stall" as an unusual pattern that requires explanation (Bongaarts, 2006; Bongaarts & Casterline, 2013; Howse, 2015; Schoumaker, 2019).

The reasons for this stall are still unclear, which has created a major challenge for demographers and policymakers seeking to help high-fertility countries make progress on their demographic transition in order to put themselves in position to capture a demographic dividend. The countries with still-high fertility are found in several different regions, and even within regions have different histories, governments,

and ethno-religious compositions. It is debated how much high fertility is due to desired vs. unwanted fertility (Bongaarts, 2020); how much effect women's education and work will have on fertility (Goujon et al., 2015); and how much fertility will eventually respond to urbanization or other social changes (Martine et al., 2013). In addition, any change in family patterns will have to be built on the foundation of women's empowerment and human rights, which are now at the core of all accepted population policies (see Chaps. 2, 31, and 33 in this *Handbook* [Hardee, [this volume](#); Rotenberg, [this volume](#); Rahm, [this volume](#)]).

Moreover, how fast these countries are able to reduce their population growth has major implications for their impact on their local – and the global – environment, especially where fast-growing populations impact forests, water supplies, or other critical resources (see Chap. 6 [Barbieri & Pan, [this volume](#)]). At the same time, climate change and population growth will stress the ability of low-income countries to feed themselves, whether by growing their own food or purchasing it from an increasingly stressed global market (see Chaps. 7 and 35 in this *Handbook* [Mergos, [this volume](#); Hara, [this volume](#)]).

It has therefore become clear that countries will need to develop a multi-faceted set of policies that will address the particular context and characteristics of their society if they are to change their demographic trajectory (May, 2017; May & Guengant, 2020). These challenges and policies addressing them are discussed in more detail in this *Handbook* in Chaps. 2, 5, 8, 11, 12, 15, 19, 27, 30, 31, 32, and 36 (Hardee, [this volume](#); Bongaarts et al., [this volume](#); Bado et al., [this volume](#); Karim et al., [this volume](#); Visaria, [this volume](#); Bernstein et al., [this volume](#); Turbat et al., [this volume](#); Cleland, [this volume](#); Goujon, [this volume](#); Rotenberg, [this volume](#); Paz, [this volume](#); May & Goldstone, [this volume](#)).

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## Migration: Global and Local

Like other demographic trends, migration – and issues of welcome vs. hostility to immigrants –

are as old as human societies. In ancient Egypt, immigrants from the Israelite tribes were first welcomed, but later faced discrimination and later enslavement. Classical Athens's seaport, markets, and theaters were enriched by foreigners, but they were never allowed to become citizens. In the early seventeenth century, England's Puritans migrated to America to escape persecution; later that century, French Huguenots migrated to England when their religion was banned in France. In the nineteenth century, a fungal infestation that ruined potatoes led to massive migrations of Irish and Germans, while in the twentieth century, two World Wars forced millions from their homes. Throughout history, much migration was involuntary, as prisoners captured in war or slaving raids were shipped away from their homes.

As this short summary reveals, the causes of migration are many and diverse. People leave their homes, and often their countries, to seek opportunities, to flee religious or ethnic persecution, in the wake of military or ecological disasters, or against their will. How they are received in their destinations depends on conditions in their destination country, their own skills and characteristics, the reason they are moving, their numbers, and the history of migration and other relations between their home and destination societies.

While the issue of immigration is old, like other demographic trends in the world today the sheer scale and pace of migration is reaching unprecedented levels. The number of people forcibly displaced from their homes has reached 84 million by the middle of 2021 (United Nations High Commissioner on Refugees, 2021); that is roughly equivalent to the entire population of Germany. Of these, roughly 50 million are seeking shelter within their own countries, while about 34 million are refugees or asylum seekers in foreign countries. Nearly ten times as many – 281 million – are economic migrants (including their families) that have crossed borders, for a total of one in 25 people in the world who are living for at least 1 year outside the country of their birth.

Of course, behind this vast total lie very different trends in different countries and regions. The Middle East is a huge importer of labor from South Asia, but denies these migrants citizenship. By contrast, North America, Canada, and Australia are countries of immigration, with a large fraction of their population consisting of recent immigrants, their children and grandchildren, many of whom achieve naturalization and citizenship. In recent years, wars have led waves of refugees from Afghanistan, Syria, and Libya to seek safety in Turkey and Europe; at the same time, drought and crime have pushed Central Americans to the southern border of the United States. In Africa, civil and international wars have driven tens of millions to seek refuge in neighboring countries, with millions living in refugee camps.

In addition, global patterns of migration are shifting dramatically. For most of the last 300 years, European countries were mainly senders of emigrants to the Americas and Oceania (Australia and New Zealand), but in the last 50 years they have received considerable numbers of immigrants: from other European states, from their former colonies, and from unstable states around the Mediterranean. In the United States, Asia has displaced Mexico and other parts of Latin America as the main source of new immigrants. Asia has also become the global hub of migration, with "South-South" migration flows becoming impressively large (International Organization for Migration, 2014). India has become the world's leading source of international migrants (Connor, 2017), and poorer Asian countries (Cambodia, Indonesia, the Philippines, Bangladesh, Pakistan) are sending millions of workers to richer Asian countries, including the United Arab Emirates (UAE), Saudi Arabia, China (notably Hong Kong and Macau), South Korea, Singapore, Japan, and Thailand, while central Asian countries send workers to Russia. In the near future, as the population of sub-Saharan Africa becomes the largest reservoir of young people in the world while population growth slows in all other regions, and rich countries rapidly age, Africans are

poised to make up an ever-larger part of global migration flows. In addition, while climate change driving refugees is not new (the “Dust Bowl” conditions in the US plains states in the 1930s propelled one of the largest waves of internal migration in American history), it seems likely that the global climate change underway this century will lead to many more episodes of climate refugees, involving tens of millions or more, with international implications (Trimarchi & Gleim, 2020).

Policies to govern these migration flows are both highly varied and highly contentious. Some of the key questions are whether migration laws should be made by each country for itself, or should result from multi-national international or regional agreements. The European Union sought to impose a set of immigration policies on all its members, only to have front-line countries rebel and impose their own regulations. The United Nations has drawn up a Compact for Safe, Orderly and Regular Migration, which calls for international cooperation in migration and respect for human rights and due process that was signed by 152 nations (McAdam, 2019). But these are guidelines only, with no power to enforce them.

As discussed by Brown ([this volume](#)) in Chap. 29 of this *Handbook*, different countries have developed very different migration policies, and different justifications for them. Some countries, such as Canada, Australia, and New Zealand, welcome permanent migrants provided they meet certain desirable criteria in terms of the skills or capital they bring. Other countries, such as the Persian Gulf monarchies, allow huge numbers of migrants but only under strict conditions of employer sponsorship and temporary residence. Sweden and the United States have unusually generous programs for family reunification and asylum seekers; Japan and South Korea recognize they need foreign labor, but seek to keep their ethnic and cultural homogeneity by discouraging permanent migration and having rigorous rules even for temporary workers. Some countries, like China, have few regular procedures for dealing with immigrants, as they simply do not expect foreigners to wish to become “Chinese”. The outflow of Syrian

refugees seeking asylum from their civil war led Germany to open its doors in 2015, but led other European countries, notably Hungary, to slam them shut. In short, the labor needs, culture, degree of pluralism, and history of migration differ so greatly among different countries that it is extraordinarily difficult to find common grounds for international migration policies.

Each country thus seeks policies to deliver the “right” number and sources of migrants for its needs, and to govern the terms of their entry and residence. This is always a politically fraught effort. Anxieties about too much immigration can produce political conflict, and threaten democracy by increasing support for authoritarian-populist leadership hostile to outsiders (Weiner, 1997; Goldstone & Diamond, 2020). The richer countries of Europe and East Asia, and the U.S., are particularly concerned about the impact of immigrants from poorer countries on their culture and ethnic composition. At the same time, too little immigration can lead to fast-aging populations with labor shortages and not enough young productive taxpayers to sustain fiscal commitments and power economic growth (Porter, 2017).

Less developed countries have their particular concerns as well. Losing too many talented, highly trained migrants can lead to a “brain-drain” of highly productive people; at the same time, highly trained people who go abroad often return home with skills and capital, in a “circular migration” that can greatly boost development in their countries of origin (Newland et al., 2008). Remittances from migrants are often one of the main sources of international income for less developed countries; but international migration also often entails trafficking and smuggling human cargo (Coco et al., 2019; Shelley, 2010).

We should also note another form of migration with enormous consequences: internal (and to some degree, international) migration from the countryside to cities. As with other forms of migration, this long-standing flow has assumed unprecedented proportions in this century. It was only in 2010 that for the first time in history a majority of the world’s population was classified as urban (although definitions of urban areas vary

greatly across countries). The global proportion of urban population will continue to grow: from 30% in 1950 to 56% in 2020, and an estimated nearly 70% in 2050. That is, the world is well advanced on the way from a 30/70 urban/rural composition to a reversed 70/30 composition within a century (United Nations, 2018).

What is especially distinctive is that for most of human history, urbanization and the existence of mega-cities has characterized the most economically advanced societies of their time. Today, however, the fastest urbanization and many of the largest cities are in low-income less developed countries (e.g., Delhi, Mumbai, and Kolkata in India; Mexico City in Mexico; Dhaka in Bangladesh; Cairo in Egypt; Karachi in Pakistan; Lagos and Kinshasa in sub-Saharan Africa; and Manila in the Philippines, all with fourteen million or greater population [WorldAtlas.com, 2022]).

Throughout history, cities have been the engines of economic growth and the centers of arts and communication. People's tendency to cluster in cities has been emblematic of human societies for the last 5000 years. Thus, on the whole, the trend toward urbanization through the world has been positive. However, rapid urbanization places strains on governance, health, sanitation, and transit that can be overwhelming challenges for low-income societies (see Chap. 18 [Vučković & Adams, [this volume](#)]). The differences between Tokyo and Lagos, Buenos Aires and Kinshasa in terms of order, safety, and health reflect these challenges. When rapid urbanization occurs early in economic development, it can even foster political terrorism (Slav et al., 2021). The administration of rapidly burgeoning cities in the less developed world thus requires additional policy attention.

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## Conclusion

The world's population is growing larger. But that, in itself, is not the threat that it once seemed. Agriculture and industrial production have more than kept pace with past population growth, lifting over a billion people out of poverty while

making the world's richest societies ever richer. Moreover, for most of the world's societies, including the very largest, population growth has slowed and already has, or soon will, start to reverse. Today's population issues have much more to do with the complexity of a diverse world, with different countries at very different stages of their demographic transition and economic development, yet all facing issues of climate change, the need to defend human rights and empower women, and maintain a balance between the needs and desires of their populations and the global flows of capital and people.

Simply understanding what is happening, and the speed at which change is taking us into unknown conditions, requires timely and reliable data, and international cooperation and coordination (Chap. 16 on Data Collection for Population Policies [Spoorenberg, [this volume](#)], and Chap. 15 on Population Institutions and International Population Conferences [Bernstein et al., [this volume](#)] provide detailed insights on these issues). Creative new policies will be needed to respond to the new challenges of rapid population aging, to gain and maximize the demographic dividend in middle-income countries, and to slow the headlong population growth in the still-fast growing countries where fertility persists at high levels.

These challenges will have to be met at the same time that countries are navigating rapid urbanization, climate change, adjusting to a greater and more autonomous role for women, and dealing with the still powerful effects of globalization of goods, transit, and people. Whether democracy as a mode of governance, and continued progress in overcoming poverty and inequality, can continue in the face of such unavoidable demographic challenges is a genuine concern. We sum up the prospects for the necessary population policies and interventions in Chap. 36 (May & Goldstone, [this volume](#)).

This *Handbook* provides insights into these demographic trends, the history of population policies, and ideas for policies that may prove fruitful in the future. As shown clearly in the

following chapters, international population policy is where demography, politics, culture, and morality all meet.

## References

- Ambrosetti, E. (this volume). Chapter 14: Europe: Low fertility, aging, and migration policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Ancient Roman Odyssey. (2021). *The censor*. See <https://www.ancientromanodyssey.com/censor.html>
- Australian Bureau of Statistics (ABS). (2021). *Census through the ages: In ancient times*. See <https://www.abs.gov.au/websitedbs/d3310114.nsf/51c9a3d36edfd0dfca256acb00118404/eadafffb171cab6ca257161000a78d7!OpenDocument>
- Bado, A. R., Guengant, J. P., & Issaka Maga, H. (this volume). Chapter 8: Sub-Saharan Africa: Slow fertility transitions despite policy efforts. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Barbieri, A. F., & Pan, W. K. (this volume). Chapter 6: Population dynamics and the environment: The demographic transition. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Bergsvik, J., Fauske, A., & Hart, R. K. (2021). Can policies stall the fertility fall? A systematic review of the (quasi-) experimental literature. *Population and Development Review*, 47(4), 913–964. See <https://doi.org/10.1111/padr.12431>
- Bernstein, S., Hardee, K., May, J. F., & Haslegrave, M. (this volume). Chapter 15: Population institutions and international population conferences. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Bloom, D. E., Canning, D., & Sevilla, J. (2003). *The demographic dividend: A new perspective on the economic consequences of population change*. RAND.
- Bongaarts, J. (2006). The causes of stalling fertility transitions. *Studies in Family Planning*, 37(1), 1–16.
- Bongaarts, J. (2020). Trends in fertility and fertility preferences in sub-Saharan Africa: The roles of education and family planning programs. *Genus*, 76(1), 1–15.
- Bongaarts, J., & Casterline, J. (2013). Fertility transition: Is sub-Saharan Africa different? *Population and Development Review*, 38(Suppl 1), 153–168.
- Bongaarts, J., Gragnolati, M., Ahmed, S. A., & Corker, J. (this volume). Chapter 5: Population, development, and policy. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Brown, S. K. (this volume). Chapter 29: International migration policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Buettner, T. (this volume). Chapter 21: Population projections and population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Charbit, Y. (this volume). Chapter 3: Classical foundations of past and present population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Cincotta, R. (2012, January). Life begins after 25: Demography and the societal timing of the Arab Spring. *E-Notes*. Foreign Policy Research Institute.
- Cleland, J. (this volume). Chapter 27: The contraceptive revolution. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Coco, F., Wheatley, J., Pong, J., Blood, D., & Rininsland, A. (2019, August 28). Remittances: The hidden engine of globalisation. *Financial Times*.
- Connor, P. (2017, March 3). India is top source and destination for world's migrants. *Pew Research Center*. See <https://www.pewresearch.org/fact-tank/2017/03/03/india-is-a-top-source-and-destination-for-worlds-migrants/>
- Crane, B., & Maistrellis, E. (this volume). Chapter 28: The role of abortion in population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Dyson, T. (2010). *Population and development: The demographic transition*. Zed Books Ltd/Room 400.
- Easterlin, R. A. (1961). The American baby boom in historical perspective. *American Economic Review*, 51(5), 869–911.
- Economist*. (2021, December 4). The patter of fewer tiny feet: India's population will start to shrink sooner than expected. For the first time, Indian fertility has fallen below replacement level. *The Economist*. See <https://www.economist.com/asia/2021/12/02/indias-population-will-start-to-shrink-sooner-than-expected>
- Gardner, J. F. (1998). *Family and familia in Roman law and life*. Clarendon.
- Gietel-Basten, S., Sobotka, T., & Zeman, K. (2021). *Future fertility in low-fertility countries*. Vienna Institute of Demography.
- Gietel-Basten, S., Cruz, C. J., Ganly, R., Li, Z., & Cheung, J. T. H. (this volume). Chapter 13: Population policies in East Asia and Oceania. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Goldstone, J. A., & Diamond, L. (2020). Demography and the future of democracy. *Perspectives on Politics*, 18(3), 867–880.
- Goujon, A. (this volume). Chapter 30: The education revolution. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Goujon, A., Lutz, W., & KC, S. (2015). Education stalls and subsequent stalls in Africa fertility: A descriptive overview. *Demographic Research*, 33, 1281–1296.
- Guzman, J. M. (this volume). Chapter 10: Population policies in Latin America and the Caribbean: From



- Carmen Miró to the Montevideo Consensus. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Hara, T. (this volume). Chapter 35: Demographic sustainability. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Hardee, K. (this volume). Chapter 2: Population policies framework. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Howse, K. (2015). What is fertility stalling and why does it matter? *Population Horizons*, 12(1), 13–23.
- International Organization for Migration. (2014). *South-South migration: Partnering strategically for development*. Paper prepared for the International Dialogue on Migration, Intersessional Workshop March 24–25, Geneva, IOM.
- Jurczynska, K., & Gribble, J. (this volume). Chapter 9: The United States and Canada: Demographic realities and policy responses. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Karim, M., Ambrosetti, E., & Ouadah-Bedidi, Z. (this volume). Chapter 11: Demographic features of West Asia and North African countries: The impact of population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Korea Times*. (2021, December 30). *Korea's childbirths hit record low in October*. See [https://www.koreatimes.co.kr/www/nation/2021/12/281\\_321344.html](https://www.koreatimes.co.kr/www/nation/2021/12/281_321344.html)
- Korotayev, A., Zinkina, J., Goldstone, J. A., & Shulgin, S. (2016). Explaining current fertility dynamics in tropical Africa from an anthropological perspective: A cross-cultural investigation. *Cross-Cultural Research*, 50(3), 251–280.
- Lee, R. D. (2009). *New perspectives on population growth and economic development*. Paper prepared for the UNFPA plenary session on After Cairo: Issues and Challenges, presented at the Annual Meeting of the International Union for the Scientific Study of Population, Marrakech, MA.
- Lee, R. D., & Mason, A. (2006). What is the demographic dividend? *Finance and Development*, 43(4), 16–17.
- Livi-Bacci, M. (2017). *A concise history of world population* (6th ed.). Wiley.
- Maddison, A. (2005). *Growth and interaction in the world economy: The roots of modernity*. The AEI Press.
- Martine, G., Eustáquio Alves, J., & Cavenaghi, S. (2013). *Urbanization and fertility decline: Cashing in on structural change* (IIED Working Paper). International Institute for Environment and Development.
- Mason, A. (2005). *Demographic transition and demographic dividends in developed and developing countries*. Paper prepared for United Nations Expert Group Meeting on Social and Economic Implications of Changing Population Age Structures, Mexico City, MX.
- May, J. F. (2012). *World population policies: Their origin, evolution and impact*. Springer.
- May, J. F. (2017). The politics of family planning policies and programs in sub-Saharan Africa. *Population and Development Review*, 43(Suppl 1), 308–329.
- May, J. F., & Goldstone, J. A. (this volume). Chapter 36: Prospects for population policies and interventions. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- May, J. F., & Guengant, J. P. (2020). *Demography and economic emergence of Sub-Saharan Africa*. Académie Royale de Belgique.
- McAdam, J. (2019). Introductory note to global compact for safe, orderly, and regular migration. *International Legal Materials*, 58, 160–162.
- Mergos, G. (this volume). Chapter 7: Population and food system sustainability. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Mudrazija, S., & Angel, J. L. (this volume). Chapter 25: Population aging and public policy. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Newland, K., Agunias, D., & Terrazas, A. (2008). *Learning by doing: Experiences of circular migration*. Migration Policy Institute.
- Paz, J. A. (this volume). Chapter 32: Demographic dynamics, poverty, and inequality. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Population Reference Bureau. (2019). *2019 world population data sheet: Census milestones and moments*. PRB. See <https://www.prb.org/resources/milestones-and-moments-in-global-census-history/>
- Porter, E. (2017, August 8). The danger from low-skilled immigrants not having them. *New York Times*. See <https://www.nytimes.com/2017/08/08/business/economy/immigrants-skills-economy-jobs.html>
- Rahm, L. (this volume). Chapter 33: Bioethics, sex selection, and gender equity. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Rotenberg, S. (this volume). Chapter 31: Priority groups in population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Schoumaker, B. (2019). Stalls in fertility transitions in sub-Saharan Africa: Revisiting the evidence. *Studies in Family Planning*, 50(3), 257–278.
- Sciubba, J. D. (this volume). Chapter 34: Population and national security. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Shelley, L. (2010). *Human trafficking: A global perspective*. Cambridge University Press.

- Slav, M., Smyslovskikh, E., Novikov, V., Kolesnikov, I., & Korotayev, A. (2021). Deprivation, instability, and propensity to attack: How urbanization influences terrorism. *International Interactions*, 47(6), 1100–1130.
- Sobotka, T., Matysiak, A., & Brzozowska, Z. (2020). *Policy responses to low fertility: How effective are they?* (Working Paper No. 1). United Nations Population Fund, Technical Division, Population & Development Branch.
- Spoorenberg, T. (this volume). Chapter 16: Data collection for population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Tatum, M. (2021). China's three-child policy. *The Lancet*, 397(10291), 2238. See [https://doi.org/10.1016/S0140-6736\(21\)01295-2](https://doi.org/10.1016/S0140-6736(21)01295-2)
- Trimarchi, M., & Gleim, S. (2020, September 24). One billion people may become climate refugees by 2050. *Ecowatch*. See <https://www.ecowatch.com/climate-refugee-2050-2647788456.html>
- Turbat, V. (this volume). Chapter 19: Policies needed to capture demographic dividends. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Turbat, V., Gribble, R., & Zeng, W. (this volume). Chapter 4: Population, burden of disease, and health services. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Turner, J. (this volume). Chapter 26: Pension policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- United Nations. (2018). *World urbanization prospects. The 2018 revision*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2019). *World population prospects. The 2019 revision*. United Nations, Department of Economic and Social Affairs, Population Division. Online Edit. Rev. 1. See <https://population.un.org/wpp/>
- United Nations High Commissioner on Refugees. (2021). *Mid-year trends 2021*. United Nations, UNHCR.
- Visaria, L. (this volume). Chapter 12: South Asia: Did population policies trigger a fertility convergence? In J. F. May & J. A. Goldstone (Eds.), *International Handbook of Population Policies*. Springer.
- Vučković, M., & Adams, A. (this volume). Chapter 18: Population and health policies in urban areas. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Weiner, M. (1997). *The global migration crisis: Challenge to states and to human rights*. Longman.
- Wesolowski, K., & Billingsley, S. (this volume). Chapter 17: Family policies: How do they differ around the world? In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Williams, K. (2006). *Mark one or more: Civil rights in multiracial America*. University of Michigan Press.
- WorldAtlas.com. (2022). *The largest cities in the world by population*. See <https://www.worldatlas.com/articles/the-10-largest-cities-in-the-world.html>



# Population Policies Framework

# 2

Karen Hardee

## Introduction

While the administration of policy in most fields tends to become somewhat routine after 30 years of continuous implementation, the same cannot be said of population policy. (Finkle & McIntosh, 1994: 26)

The discourse on population policy has always been lively, ranging from building numbers for national strength, to dodging the ‘population bomb’, to addressing the birth dearth, to protecting individual rights to make decisions about fertility. Populations grow or decline through births, deaths, and migration and population policies are government actions designed to influence those demographic factors. As early as 400 BC, “Plato . . . concluded that the number of citizens in an ideal city state is 5,040” (Fishkin & Goodin, 2010: 39).

Concern in the 1920s and 1930s about low birth rates and population decline in Europe led to European countries taking steps to address it (Demeny, 2003). Attention to high fertility and rapid population growth gained momentum in the 1950s, including through a model by Coale and Hoover suggesting that rapid population growth in less developed countries would impede economic development (Robinson & Ross, 2007). The misalignment between death rates, which

were coming down due to the spread of medicine and better healthcare, and fertility, which remained high, was seen to be the main issue to be addressed through attention to population stabilization, or a state of zero population growth in which demographic dynamics align to produce and maintain a stable population.

Interest in addressing population growth through population policies gained traction in the 1970s. At the 1974 United Nations World Population Conference (WPC) that resulted in the *World Population Plan of Action*, countries were urged “to consider adopting population policies within the framework of socio-economic development, which are consistent with human rights and national goals and values” (Singh, 2009: 10). Addressing population growth was now a legitimate concern of countries (Mirkin, 2005). The focus of population policy was further shaped at the International Conference on Population and Development (ICPD) in 1994, with a call to eschew demographic targets and focus on individual rights and women’s empowerment.

In 1952, India became the first country to invest in a population program, when it added attention to rapid population growth through family planning to reduce fertility to its five-year development plan. India later issued its first stand-alone national population policy in 1976. Other Asian countries followed India, and policy attention, with support from the U.S. Agency for International Development (USAID), the World Bank, and the United Nations Population Fund

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(UNFPA) among other donors, spread to Africa (Robinson & Ross, 2007). Population policies in sub-Saharan Africa followed largely in the 1980s and 1990s. Robinson (2016) contends that international organizations exerted some pressure on countries to adopt policies, noting that African countries with greater levels of World Bank debt were more likely to adopt explicit population policies. Some countries in Latin America, including Mexico, have had population policies, while others provided family planning without policies (Bertrand et al., 2015).

Attention shifted to concern with low fertility in the wake of the 1987 book *The Birth Dearth*, which suggested that a shrinking population, due to low fertility and population aging, was the more important issue related to population (Wattenberg, 1987). Policy response to population dynamics in Europe, and in countries in East Asia, where fertility has fallen to very low levels, is increasingly focused on how to increase fertility.

Given that population relates to intimate areas of sex, reproduction, and the family, population policy can be sensitive, and raises ethical questions about the role of the state in enacting policies related to these aspects of people's lives (Bok, 2010). Within this context, this chapter reviews the theoretical framework of population policies. First, the chapter discusses types of population policies, followed by the overall goals and strategies of population policies, including the specific objectives of the policies. Next, the chapter describes the policy process, including problem identification, policy design, policy implementation, and policy monitoring and evaluation. As part of this discussion, the chapter identifies key policy stakeholders and constituencies, and population institutions. The chapter is illustrated with examples of population policies' design and implementation in various parts of the world.

This chapter mainly focuses on national or sub-national policies (e.g., provincial or state population policies developed in countries with decentralized governance) that explicitly seek to affect demographic dynamics. Most of these formal population policies come from countries

concerned about high population growth, but the chapter also includes policies in countries concerned with low and very low fertility and population aging. Of note, and with implications for policy implementation, funding for the development and implementation of population policies in high fertility countries has generally come from a mix of domestic (national) and international donor resources, often with a relatively high reliance on the latter. In countries focused on low fertility and population aging, by contrast, funding for the policies has come primarily from domestic resources. In both cases, funding can be jeopardized by economic downturns and by shifting policy priorities.

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## Types of Population Policies

### Explicit and Implicit Policies

The term 'population policy' is broad. In its most conventional sense, population policy refers to the range of explicit and implicit laws, regulations, national, and operational policies and programs that government enacts to affect a country's population growth, composition, or distribution. Explicit policies announce government intentions regarding population dynamics, usually in relation to development and well-being, while implicit policies affect population growth, distribution, or composition without explicitly intending to (Isaacs & Irvin, 1991). In its 2018 draft population policy, Uganda characterizes earlier policies from 1988 and 1995 as 'population-responsive', "*largely investing in the amelioration of the effects of adverse population dynamics particularly fertility and mortality . . . [while the 2018 policy is described as moving] away from the erstwhile population-responsive policy thrust to a population-influencing type of policy*" (Republic of Uganda, 2020: 2–3).

### Policy Platforms and Suites of Policies

National population policies in high fertility countries are increasingly seen as 'policy

platforms' or 'policy frameworks' for addressing demographic dynamics. For example, Malawi's 2012 National Population Policy is intended to *"provide a framework to enhance prioritization, coordination, and implementation of programmes for addressing population and development challenges, with particular focus on rapid population growth, at national and sub-national levels"* (Government of Malawi, 2012: 14). In contrast, policies in low fertility countries are considered as 'suites of policies,' or groups of disparate policies, to address these dynamics.

### **The Importance of International and Regional Agreements for Shaping Population Policies**

While governments develop their own population policies that reflect their national context, countries' policies have been influenced by international and regional conferences and agreements. Population policies have particularly been shaped by the World Population Conference in 1974 in Bucharest, the International Population Conference in 1984 in Mexico City, and the ICPD in 1994 in Cairo (Finkle & McIntosh, 1994; Robinson & Ross, 2007; Singh, 2009; May, 2012; Robinson, 2016). For example, Uganda's draft 2018 National Population Policy *"reflects the evolution of population and development related issues since 1994; at the global level, such as the International Conference on Population and Development and its Plan of Action (ICPD-PoA) in 1994, the Millennium Development Goals (MDGs) in 2000, and the Sustainable Development Goals (SDGs) in 2015; at the continental level such as Agenda 2063; and at the regional level such as EAC 2050"* (Republic of Uganda, 2020: 1–2).

The 1994 ICPD ushered in an era of population policy that shifted the focus from government-driven demographic targets to a focus on the rights of women to control their reproductive lives in good health, and of couples to decide the number and spacing of their children. Some consider this a feminist population policy. Leading up to the 1994 Conference,

women's advocates were critical of earlier programming that included targets for family planning use and that ignored women's health and neglected upholding their rights. Criticism of the over-focus on family planning as the means of addressing overpopulation had been building. Rather than tackle the complex combination of social and economic factors associated with underdevelopment and poverty, governments and donors were faulted for promoting family planning as an easier policy shortcut (Warwick, 1992). *"It was much easier to attribute 'underdevelopment' to excessive population than to confront social and economic inequality, culture, religion, female subordination, or other plausible contributing factors"* (Finkle, 2001: 11796). By 1994, population policy in less developed countries had become synonymous with family planning programs (Demeny, 2003).

The 'Cairo Consensus' that emerged from the 1994 ICPD was a blueprint for future policies and programs. In addition to facilitating the demographic transition, countries should provide voluntary family planning in the context of reproductive healthcare, improve maternal and child health outcomes, promote empowerment of women, and protect individual human rights. Furthermore, the design and development of policies should include broad participation of a range of stakeholders, most notably women and youth.

Since the 1994 ICPD, population policies have also included or been replaced by reproductive health policies, and since the 2012 London Summit on Family Planning, population dynamics have been incorporated into Family Planning Costed Implementation Plans, now developed by over 40 of the 69 priority countries included under FP2020, the partnership tasked with implementing the initiative.

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### **Goals and Strategies of Population Policies**

The stated intent of these policies often is to improve the quality of life, consistent with the available resources in a country. (Ashford, 2001: 4)

The way a problem is stated, or an issue is framed, influences the types of policy solutions that are proposed. While reducing mortality is universally agreed to be a laudable policy objective, goals for fertility and migration policy are more contested. The framing of the population issue has shifted over time, with terms such as ‘the population bomb’, ‘the demographic divide’, ‘population and development’, ‘development is the best contraceptive’, ‘population and sustainable development’, and moving from demographic targets to respect for human rights and women’s empowerment. In addition to a demographic rationale, countries have included health and human rights as rationales for family planning in their population policies (Seltzer, 2002; Bertrand et al., 2015). In many countries, the health rationale particularly was deemed preferable to the demographic rationale, given sensitivities related to fertility.

### Bringing Demographic Dynamics into Alignment with Development

Yet, within this range of frameworks for the issue of population, the overriding rationale for population policies has consistently been to bring demographic dynamics into alignment with development, well-being, and resources. In 1969, aimed at reducing the country’s population growth rate, Ghana’s population policy noted: *“We are now embarked on an ambitious programme of planning and development aimed at achieving progressively advanced levels of productivity and wellbeing of people ... These objectives are threatened by the current rate of population growth, by trends in rural to urban migration that lead to augmented urban concentration, and by open immigration and the resulting problems of deployment of non-Ghanaians in the economy”* (Republic of Ghana, 1969).

Population policy was enshrined in Ghana’s 1992 Constitution, which *“enjoins the Government of Ghana to maintain a population policy consistent with the aspirations and development needs of the country”* (Kwankye & Cofie, 2015: 1737), with the implication that programmes

would be developed and implemented to improve the quality of life of the people.

Likewise, Kenya’s 2012 Population Policy states its goal is to *“attain a high quality of life for the people of Kenya by managing population growth that can be sustained with the available resources”* (Republic of Kenya, 2012: 20). At a sub-national level, the Punjab Province in Pakistan developed a population policy in 2017 with goals to stabilize population growth, reduce fertility, and facilitate and guide relevant sectors to achieve SDG objectives associated with universal access to reproductive healthcare services (see <https://pwd.pubjab.gov.pk/policy>, accessed on April 12, 2021).

### Population Policies Following ICPD

Based on the Cairo Consensus, the scope of population policies was broadened as a result of the blueprints developed at the 1994 ICPD, although the focus on population stabilization and promoting development has remained. Proponents argued that fertility would decline and population growth would slow by addressing women’s and children’s health and rights, and that policies and programs should shift from a narrow focus on reducing fertility through top-down family planning approaches to social development, including empowerment of women and provision of contraception in the context of reproductive healthcare.

Robinson (2016: 13) notes that *“because there was no international reproductive rights treaty that countries could sign, population policy adoption after the conference became a way of demonstrating a commitment to human (reproductive) rights.”* Sierra Leone’s 1993 population policy was developed in the context of ICPD and highlights the need to respect rights. *“Population policy should be humane and responsible, fully respecting individual freedoms and rights as well as religious beliefs and cultural values. The national policy should recognize that all individuals and couples have the basic right to decide freely and responsibly on the number and*

*spacing of their children and to have information, education and the means to do so*" (Government of Sierra Leone, 1993: 2).

Similarly, Botswana's population policy from 1997 "*upholds the basic rights of couples and individuals to reproductive health and to decide freely and responsibly the number and spacing of their children, and to have access to information and education to make an informed choice; and the means to do so*" (Republic of Botswana, 1997: 4).

India's 2000 Population Policy, revised from the 1976 policy, also illustrates the shift in post-ICPD population policies. The policy retained a focus on addressing population growth and it included the expanded focus of ICPD. The policy called for family planning integrated with reproductive health, and attention to women's empowerment to help meet the mid-term objective of replacement level fertility through a total fertility rate (TFR) of 2.1 children per woman and the long-term objective of population stabilization by 2045 (GKToday, 2017).

## Population Policies in the MDGs and SDGs Eras

Since 2000, countries have increasingly aligned their development policies and strategies with the United Nations' Millennium Development Goals (MDGs, 2010–2015) and the Sustainable Development Goals (SDGs, 2015–2030). The Agenda 2030, linked with the SDGs, is the international community's commitment to 'people, planet, and prosperity'. While population is not mentioned in the SDGs as an issue, achieving universal access to sexual and reproductive health, including contraception, was a goal set at ICPD and continues in the SDGs. Analysis by Abel et al. (2016) suggests that reaching the SDGs goals would lead to a global population of between 8.2 and 8.7 billion by 2100, which is below the United Nation's low variant population projection for that year. Starbird et al. (2016) showed how family planning contributes to multiple MDGs goals. In its 52nd annual session, the Commission on Population and Development (2019) reaffirmed

the importance of the ICPD Programme of Action for guiding population and development policies and programs, within the context of the 2030 Agenda for Sustainable Development.

Rwanda has incorporated population into a range of policies, including its Vision 2020, Economic Development and Poverty Reduction Strategy 2008–2012, National Population Policy for Sustainable Development 2003, and Family Planning Policy 2012 (Republic of Rwanda, 2012). Rwanda's national family planning policy in 2012 supports the country's Vision 2020 that calls for harmonization of population growth with national development. Noting the progress made in the country in the previous decade to address population density, Rwanda's 2012 *National Family Planning Policy* notes the importance of family planning for harmonizing population growth and national development, stating that: "*Rwanda like many other African countries faces rapid population growth with diminishing natural resources. This increasing population is in need of health, education, economic and other services, which, in turn, requires additional resources, personnel and infrastructure to improve its welfare. Accordingly, development efforts in support of the MDGs should not overlook the importance and benefits of slowing population growth*" (Republic of Rwanda, 2012: 1).

## Choice of Policy Levers

In 1976, the United Nations Population Division started asking countries about their views on population in their countries, and if they were intervening to do something to change the demographic dynamics. By 2015, the latest year with available data from the UN's population policies database, 60% of governments reported doing something about fertility: 42% to lower fertility and 28% to raise fertility. In 2015, all countries with high fertility and most with intermediate fertility had policies in place to lower fertility and among countries with below replacement fertility, 62% have adopted policies to increase fertility (United Nations, 2017).

## High Population Growth

### Family Planning, Reproductive Health, and Women’s Empowerment in High Fertility Countries

In its 2015 review of government actions on population, the UN Population Division found that all countries with high fertility and two-thirds (64%) of countries with intermediate levels of fertility had policies to lower fertility. The policy levers used in these countries included: raising the minimum legal age for marriage; providing access to reproductive healthcare, including contraception, and integrating family planning into reproductive health within primary healthcare; and improving female education and employment opportunities (United Nations, 2017). See for example Box 2.1: Population Policy in Bangladesh.

#### Box 2.1: Population Policy in Bangladesh

Bangladesh is recognized for its successful population program, with the total fertility rate dropping from 6.3 in 1975 to 2.3 in 2017 and contraceptive prevalence rising from 8% in 1975 to 62% in 2017 (NIPORT and ICF, 2019). In its short history as a country established in 1971, Bangladesh has had three population policies. Bangladesh’s first population policy, with a heavy emphasis on family planning and integrating population as an integral part of national development planning, was developed in 1976. The 1976 policy’s main objective was to reduce the population growth rate from 3% in 1976 to 2.5% in 1978 (Rob et al., 2003). Population planning, primarily through family planning, has been included in the country’s five-year development plans (FYP), starting with the first FYP in 1973–1978. The *Bangladesh Population Policy 2004* retained a focus on reducing population growth, including achieving a Net Reproductive Rate (NRR) of 1 by 2010 in order to reach a stable population by 2060. At the

same time, the 2004 policy was influenced by the 1994 ICPD, with a shift from family planning to emphasizing reproductive health (Government of the People’s Republic of Bangladesh, 2004).

The *Bangladesh Population Policy 2012* maintains a focus on population and development, with a vision to “develop a healthier, happier and wealthier Bangladesh through planned development and control of the nation’s population” (Government of the People’s Republic of Bangladesh, 2012: 3). Policy levers are similar to those in the 2004 population policy and include: client-centered family planning and reproductive healthcare; urban healthcare; area-based plans and strategies to reach hard-to-reach areas; behavior change communication; adolescent welfare; empowerment of women and equal partnership of men and women; welfare services for the elderly, poor, and disabled people; population and environment; and planned urbanization. The 2012 policy also called for integrated information collection and its use; human resources development; decentralization of administrative and financial power; production and supply of family planning commodities; coordination with different policies and plans; and strengthened legal and social measures.

Policymaking in Bangladesh has been characterized as participatory. A donor reflected in 1998 that “everybody in Bangladesh is involved in policymaking – the government, the MOHFW, local governments, rural development committees, donors, NGOs, the private sector and everyone at the national level” (Hardee et al., 1998: 14).

Organization and implementation of Bangladesh’s population program has been led by the government, with strong input from donors and a large role for NGOs in implementation. The family planning program was early on put in the

(continued)



**Box 2.1** (continued)

Ministry of Health and Family Welfare (MOHFW), with some family planning functions also in eight other ministries. Coordination and collaboration among the ministries have been strained, with Robinson (2007: 334) noting that “*the existence of overlapping, parallel structures engaged in family planning in several ministries led to bureaucratic infighting over budgets.*” Furthermore, within the MOHFW, family planning was split between the Directorate of Family Planning and the Directorate of Health Services. The relationship between these directorates has been strained, with calls to integrate the directorates.

While under the auspices of the National Population Council, headed by the Prime Minister and with membership including “*concerned ministries, secretaries, departmental heads, leading non-governmental institutions, population experts, social scientists and public health experts*” (Government of the People’s Republic of Bangladesh, 2012: 19), the population policy is overseen by the MOHFW and particularly the Department of Family Planning. Twenty-five ministries are named in the policy as having a role in implementation, along with non-governmental organizations and the private sector.

## Harnessing the Demographic Dividend

As an additional policy lever, countries – particularly in sub-Saharan Africa – are focused on achieving the demographic dividend. Given the experience of some Asian countries in reaping the ‘demographic dividend,’ where fertility decline gives countries a more favorable age structure, with more people in the working ages than in the young and old dependent ages, which then can accelerate their economic development, many

countries, particularly in sub-Saharan Africa, have sought to shape their population policies accordingly. *Uganda’s Population Policy, approved by the Cabinet in 2020*, provides an example of a goal, objectives, and actions set to harness the demographic dividend (see Box 2.2). “*The proposed policy initiative is designed to outline a package of policy actions, as the prerequisites to harnessing of the dividend, to guide the course of population dynamics over the next thirty years*” (Republic of Uganda, 2020: 3). Additionally, Uganda’s National Population Council published *Uganda’s Demographic Dividend Roadmap* in 2018. Malawi’s 2012 *National Population Policy* mentions the demographic dividend, noting that the policy’s goal is “*to contribute to the improvement of the standard of living and quality of life of the people of Malawi*” (Government of Malawi, 2012: 14).

### Box 2.2: Uganda’s 2020 Population Policy: Harnessing the Demographic Dividend

**Policy Goal:** To attain a quality, cohesive, productive and innovative population for social transformation and sustainable development.

#### Policy Objectives Strategic Actions

1. Accelerate both fertility and mortality decline for a more favourable population age structure and a lower dependency burden:
  - (a) Increase and expand access to family planning (FP);
  - (b) Increase demand for family planning;
  - (c) Reduce all forms of gender inequality, gender-based violence and harmful practices at all levels;
  - (d) Increase and expand access to quality Reproductive, Maternal, Neonatal, Child and Adolescent Health (RMNCAH) services;
  - (e) Promote healthy lifestyles;

(continued)

**Box 2.2** (continued)

- (f) Promote universal health coverage; and
  - (g) Support initiatives that prevent early child bearing.
2. Maximize human capital development returns from both public and private investments in the population:
    - (a) Expand access to and improving quality of Early Childhood Development (ECD);
    - (b) Promote lifelong learning and career development;
    - (c) Mainstream gender and equity in development planning and governance; and
    - (d) Promote inclusive access to public services and economic opportunities.
  3. Transform Uganda's youthful population into a competitive advantage for development:
    - (a) Ensure that all children and young people are enrolled and retained until tertiary level education;
    - (b) Support early identification and nurturing of talent among young people;
    - (c) Promote Science, Technology, Engineering and Mathematics (STEM); and
    - (d) Promote appropriate skills development and innovation among young people.
  4. Leverage internal and international migration to achieve the greatest development benefits:
    - (a) Institutionalize diaspora remittance channels;
    - (b) Promote better management of internal migration for better resource management and environmental protection;

- (c) Promote and support organized urbanization and urban liveability;
  - (d) Improve management of labour externalization;
  - (e) Improve management of labour migrants; and
  - (f) Support a development approach that empowers Internally Displaced Persons, refugees, and hosting communities.
5. Strengthen an integrated approach to population, development and environment:
    - (a) Support integrated rural development, which allows the provision of appropriate climate-smart agricultural technologies;
    - (b) Support the implementation of policies that promote environmental sustainability;
    - (c) Integrate population, development and environment (PDE) issues into population awareness campaigns;
    - (d) Integrate PDE issues in national and sub-national development frameworks; and
    - (e) Promote PDE issues across sectors to create awareness and appreciation of the impact of population dynamics on development.
- Source: Republic of Uganda, 2020.

## Population and the Environment

Countries are increasingly focused on population and the environment, including climate change. Attention to the environment in relation to population was not a major theme at the World Population Conference in 1974, although it was listed as an area in need of further research. The link between population and the environment was part of the discussions in 1984 in Mexico and became more focused in 1994. *“The concept of development was broadened at Cairo to include the strategies of sustainability (sustained economic growth and long-term sustainability in*

*production and consumption) and a more integrated approach to population and environmental concerns*” (Singh, 2009: 11). Barroso and Sinding (2019: 357) note that this is a continued focus globally, saying the need to address *“the population-environment relationship has emerged because both sides have recognized that finding solutions to our many environmental challenges would be easier if there were less human pressure on natural ecosystems”* (Barroso & Sinding, 2019: 357). Country population policies now often contain sections on population and the environment, including Uganda’s draft 2018 *National Population Policy*, which also mentions climate change (see Box 2.2).

## Migration

Policy threads from the 1974 World Population Conference in Bucharest to the 1994 ICPD in Cairo relating to migration included the issues of rural-urban population distribution and inequities, easing the pressure of rapid urbanization, promoting small and medium sized cities, and avoiding policies that infringe on the human rights of migrants (Singh, 2009). Migration, mostly internal, is included as a policy lever in population and sustainable development policies, particularly managing population movement between rural and urban areas and addressing rapid urbanization.

Kenya’s 2012 population policy is an example of a national policy that covers these issues. Noting that the country’s population is concentrated in about 20% of its land area, Kenya’s 2012 *Population Policy for National Development* highlights *“the continued strain on the existing urban infrastructure, particularly on housing, transportation, educational and health facilities, and employment”* in urban areas (NCPD, 2012: 3). The policy calls for refocusing migration to small and medium size cities, addressing issues in informal settlements and ensuring reproductive health services for the urban and rural poor and in other hard to reach areas. The policy also calls for strengthening availability of data on refugees

and other migrants and maintaining a database on Kenyans in the diaspora.

Malawi’s 2012 *National Population Policy* notes similar issues, calling on relevant sectors to respond, saying that *“to ensure sustainable development, the sectors are expected to integrate population variables (fertility, mortality and migration) into their development planning”* (Government of Malawi, 2012: 20). Uganda’s approach to migration in its 2020 *Population Policy* includes a mix of attention to internal and international migration to achieve development benefits (see Box 2.2). Actions include: institutionalizing diaspora remittance channels; promoting better resource management, including environmental protection; promoting organized urbanization and livability; improving management of labor migrants; and supporting approaches to empower internally displaced persons, refugees, and hosting communities.

## Discomfort with the “Population” in Population Policies

The issue of ‘population’ was contentious in Cairo, although some women’s advocates acknowledged that *“there is no doubt that the world is faced with an overwhelming problem of sustained population growth at the global level . . . [and suggestions for refocusing policies] are in no way intended to denigrate the seriousness of the population problem or to suggest that nothing needs to be done”* (Dixon-Mueller, 1993: 216). As described by Barroso (2015: 794): *“The [ICPD] conference document presents a new perspective, in which high rates of population growth are understood as an interdependent and aggravating factor –rather than the cause – of problems such as poverty and environmental degradation. Even more critically, it places women’s wellbeing at the centre of population policy and points to human rights of individuals to determine and plan family size.”*

ICPD reinforced that *“demographic goals, while legitimately the subject of government*

*development strategies, should not be imposed on family planning providers in the form of targets or quotas for the recruitment of clients”* (Para 7.12) (Singh, 2009: 73). Discomfort by some about the term ‘population,’ while in the title of the ICPD conference, has remained however, prompting a prominent leader of a foundation population program to ask in 2009, fifteen years after the 1994 ICPD, “Where is the ‘P’ in ICPD?” and noting that ignoring population jeopardizes achievement of the ICPD goals. Using the example of Kenya, she said that “*no one doubts the value of empowering women through education, but when population grows this fast, countries are simply not able to sustain their development. And when education and health systems are overwhelmed or fail all together, I can assure you that it is women and girls who suffer first and most*” (Kanyoro, 2009: 2). ICPD25, the conference held in Nairobi, Kenya in 2019 to celebrate 25 years since the 1994 ICPD was held, stressed that population and sustainable development are important and both benefit from maintaining attention to individual rights and women’s empowerment.

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## Low Population Growth

In the UN Population Division’s 2015 query, among countries that have below-replacement fertility, which are primarily in Europe and Asia, 62% have adopted policies to raise fertility levels. Some of these countries have fertility close to replacement level, while others are considered to have very low fertility, closer to a total fertility rate of one child. The measures adopted in these policies have included baby bonuses, family allowances, maternal, parental, and paternal leave as well as tax incentives and flexible work schedules.

Participants in a UN expert meeting on policy responses to low fertility in 2015 reinforced the nexus between policy and socio-cultural context, noting that: “*Fertility changes occur . . . within, and were mediated by, the institutional context of a country, involving both formal policies and informal norms associated with cultural and*

*socio-political structures and history. There . . . [is] neither a single pathway to very low fertility nor one policy or policy package that . . . [leads] to near replacement fertility”* (United Nations, 2015: 13).

The expert meeting noted that there is no single best response to address low fertility, which must be considered in each country’s local context and historical experience. The context in Northern European countries such as Norway is different than in Italy, Singapore, or South Korea. Box 2.3 highlights contrasting approaches to low fertility from Romania and the Netherlands. The meeting recommended policy packages that consider institutional constraints and the needs of families, focused on balancing between having/taking care of children and other activities “*such as productive labour, addressing difficulties in accessing housing and in educating children, reducing child poverty and increasing family well-being*” (United Nations, 2015: 14). Other recommendations included ensuring that policies are coherent and stable; focusing on facilitating choice and promoting human rights, including gender-balanced development policies rather than pro-natalism; understanding that cultural norms can impede or facilitate the implementation and effectiveness of policies; the importance of identifying the problem to be solved; and the importance of having long-range comparable population data.

### Box 2.3: Contrasting Approaches to Addressing Low Fertility

Among the most notorious and draconian pro-natalist policies occurred in Romania from 1966 to 1990 under the rule of Nicolae Ceaușescu, who promised wide ranging government support for large families that the government was unable to provide. Abortion was made illegal and contraceptives not available, which resulted in high rates of unwanted births, illegal abortion and child abandonment (Klingman, 1998; Bok, 2010). In contrast, the Netherlands has maintained near-replacement fertility, not

(continued)

**Box 2.3** (continued)

through a direct family policy focused on fertility, but through social welfare benefits supporting starting and raising a family, including support to buy homes or access public housing, maternity leave, and flexible working conditions (United Nations & East West Center, 2015).

Immigration can also boost population size and is thus a potential policy lever in low fertility settings. The UN's 2019 enquiry to countries on population issues highlights international migration, with 92% of the 111 countries that responded saying that they have a dedicated government agency to handle national immigration policy, and 91% have an inter-ministerial coordination mechanism to ensure policy coherence (United Nations, 2019). In light of growing attention to international migration, including by people displaced through conflict and environmental stress, few governments (3%) had policies to lower their current levels of migration through regular, legal, channels. At the same time, irregular migration is of concern among all but five of the countries.

### **Moving from Policies Addressing High Fertility to Low Fertility**

Some countries that previously had policies to lower fertility and population growth have reversed their policies. At the end of 2015 China reversed its 30 year One-Child policy, ending the world's most draconian anti-natalist population policy, which had met with near unanimous international opprobrium (Feng et al., 2016). In 1974 at the World Population Conference, China's policy position was that each mouth to feed came with two hands to work. This position was changed within 5 years when policymakers

were convinced by population projections that China's population was growing too fast for its economy and natural resources to support. The One-Child Policy was announced in 1979. Yet within 35 years, it had become apparent that the sudden shift to one child per family would deprive China's economy of a growing labor force, and left China's aging seniors without sufficient children to provide and care for them. China thus sought to reverse its rapid fertility decline. China's experience since 2015 shows the difficulty of changing fertility preferences upward through policy levers. Fertility in China is not rising (Wee & Myers, 2020), raising the question, "Can China recover from its disastrous one-child policy?" (Kuo & Wang, 2019). China is now grappling with the same policy options as other countries facing low fertility and an aging population.

China is not the only country that has reversed its policy stance on population. Vietnam has recently reversed course and lifted its 50-year policy of promoting two child norms. Instead, regarding population planning for the period 2016–2020, the 12th Party Central Committee issued Resolution No. 21-NQ/TW on the goal of universal access to modern contraception by the year 2030. The resolution also highlighted the shift of focus from family planning to population and development, with attention to population size, structure and distribution, along with population health, and their links to socioeconomic development (Ministry of Health [Vietnam], 2018). After decades of a successful family planning program that resulted in a below-replacement level total fertility rate of 1.9 in 2010, Iran in 2012 shifted to a pro-natalist policy to encourage larger families (Aloosh & Saghai, 2016). Thailand is also grappling with its shifting demographic dynamics. Its brief for ICPD25 in 2019, *Population and Development for Sustainable Thailand*, noted the need for policies to promote family life without compromising other areas of life, and to plan for population aging.

## The Policy Process

Regardless for the focus of a policy, the process for developing, implementing, monitoring, and evaluating the policy is similar. The policy process has been described as a linear process of problem identification, policy development, policy implementation, and policy monitoring and evaluation (Lasswell, 1951). This view of policy suggests that policy practitioners raise issues, e.g., related to population, that could be addressed through policy, they debate and make a policy choice, the policy is implemented, and the outcomes monitored. However, while helpful as a heuristic this linear view of policy ignores the feedback loops that occur in policy making.

Others have suggested more complex frameworks to capture the dynamic nature of policy that account for opportunities to move backward as well as forward in the policy process. Grindle and Thomas (1991) suggest a framework that includes an agenda phase, a decision phase, and an implementation phase, with steps at each phase for and against – putting the problem on the policy agenda and for or against policy reform and facilitating or impeding implementation. Kingdon (1984) says that policy change occurs when three streams that can act independently, namely problems, politics, and policies, converge. Kingdon proposes that the streams come together through consistent and sustained action by advocates. Acknowledging the dynamic nature of policy, Hardee et al. (2004) identify six components of policy that need to be considered in policymaking: the problem to be addressed; the people (stakeholders) who participate in policy and the places (institutions) they represent; the process (policy development); the price tag (financing); the paper (laws, regulations and policies); the programs (through which to implement the policy); and performance (policy implementation). This policy circle operates within national and global political, social, cultural and economic contexts. Sadik (1991) reinforces that availability of demographic and program data (e.g., through national surveys such as the Demographic and Health

Surveys and through programmatic research and program monitoring and evaluation) and policy analysis underpin the policy process.

These models all suggest that policies emerge from perceived problems and acknowledgment of the role of policymakers and other stakeholders in proposing policies and acting on policy options. The ICPD Programme of Action included a section on policy, recommending that national policies and plans of action incorporate population concerns into all relevant development strategies, plans, policies, and programs and that those be developed, implemented, and monitored through broad participation of stakeholders.

## Policy Documents

Population policies tend to contain similar sections: a rationale; goals and objectives; expected outcomes; policy and program actions; monitoring and evaluation of outcomes; and institutional arrangements for implementation (Isaacs & Irvin, 1991). The policy notes that a Population Policy Action Plan will follow the policy. Robinson (2016: 10), describes population policy documents in sub-Saharan Africa as following similar templates, with heavy reliance on international (e.g., ICPD) and regional population conference documents, “*Specifically, the policies generally start with a broad statement about the relationship between population forces and development and well-being, are followed by a discussion of the demographic and economic situation of the country, present policy objectives and strategies, and conclude with a description of the institutional structures for implementing the policies as well as plans for monitoring and evaluation.*”

## Policy Stakeholders and Institutions

Getting an issue on the policy agenda includes a range of stakeholders. Advocates can push for policy action, while getting the problem on the formal policy agenda of issues to be addressed

requires official action by the government. Through the process of policy formulation, proposed actions are articulated, debated, and drafted into language for a law or policy.

Various parts of governments play key roles in formal policymaking, including the executive, the legislative, and the judiciary branches. Local governments have their own policy making structures, if they have decentralized authority to do so. Government stakeholders include politicians (heads of state and legislators), bureaucrats and technocrats from various sectors (e.g., health, education, finance, local government), and public sector staff who implement programs. Non-governmental institutions and stakeholders also contribute to policymaking by acting as advocates for policy change (civil society groups, grassroots organizations, NGOs, and advocacy groups), by providing data for decision making (academic and research organizations), and by providing funding (donor organizations) for policy research, policy dialogue and formulation, and implementation. International organizations also play a role in supporting – and influencing – policy making.

Early population policies were promoted by technical experts, including demographers who came back to their countries from international conferences, for example the population conferences in Rome in 1954 and Belgrade in 1965, which were held in collaboration with the International Union for the Scientific Study of Population (IUSSP). The conferences in Bucharest in 1974, Mexico City in 1984, and Cairo in 1994 shifted to government representation, with increasing participation of civil society, particularly at the 1994 ICPD (Dixon-Mueller, 1993).

The first population policies were adopted with little public discussion. In Kenya, for example, the speed at which the 1967 policy was adopted, based on a report and recommendations from an international organization without public discussion, reportedly caused contention and retreat from support by policymakers (Warwick, 1992; Heisel, 2007). In Mexico, “*President Echeverria’s announcement of a population policy took most observers by surprise*” (Thomas &

Grindle, 1994: 58). Robinson and Ross (2007) identify three types of policy making, including authoritarian, which characterized early population policies in Egypt, Indonesia, Iran, Morocco, Nepal, Pakistan, Philippines, Singapore, and Tunisia. The U.S. National Academies of Sciences, which hosted a series of regional seminars on population policy in South and Southeast Asia, Africa, the Middle East, and Latin America, noted that participants “*agreed that population policies are formulated at the national level by small groups of people, often in planning agencies and health ministries, with little or no public debate or participation*” (NAS, 1974: 101). At that time there were no political party or public demands for population policy in any of the countries. Over time, both national and international support for population policies, and, by extension, family planning and reproductive health policies, grew. USAID’s work on population started in 1965 with the Office of Population (later renamed the Office of Population and Reproductive Health) established in 1969. UNFPA was established in 1969; both organizations provided support for population policy development. As noted elsewhere in this chapter, population policymaking expanded to include a wider range of stakeholders following the ICPD in 1994.

Having a strong leader supporting a policy has been beneficial to policy development and implementation. For example, early high-level support boosted population policy in Indonesia in the 1960s (Hull, 2007). President Suharto, who was urged by technocrats, the mayor of Jakarta, Indonesia’s capital, and international organizations, signed the World Leader’s Declaration on Population in 1967 (Ayala & Caradon, 1968) and established a family planning program. Support by religious leaders helped strengthen political support for family planning. A charismatic leader, Dr. Haryono Suyono, had the president’s support to expand the population and family planning program. A more recent example is Rwanda, President Paul Kagame and parliamentarians are among the leaders who strongly support addressing population as part of the country’s development strategy through

positioning family planning as a positive input to wellbeing rather than a means of population control (Solo, 2008). Having high level buy-in helps garner resources and other leaders to support it. As noted in an eight-country study, “*Countries with an earlier and greater commitment to population policies and family planning programs were characterized by the formation of coalitions of senior policymakers who were able to identify coherent rationales, share political risk, and, therefore, become important contributors to the sustainability of population policies. This process was influenced by a number of different factors: strong leadership by key individuals, a low level of organized opposition, and continuous institutional and financial support*” (Lush et al., 2000: 21).

Box 2.4 shows the evolution of population policy in Nigeria in the context of ambivalent political commitment and weak implementation.

**Box 2.4: Population Policy in Nigeria: Political Ambivalence and Weak Implementation**

With the continent’s largest population of an estimated 201 million people in 2019 (Population Reference Bureau, 2019), Nigeria has been ambivalent about implementing its population and development policies, including providing family planning. Implementation of population policy has been hampered in the context of Nigeria’s decentralized and ethnically and religiously diverse country.

Nigeria established its first population policy in 1988, supported by a dynamic minister of health. The *National Policy on Population for Development, Unity, Progress and Self-Reliance* aimed to improve standards of living and quality of life, to promote health and to achieve lower population growth rates, including reducing fertility from six to four children and sought to make family planning services more accessible and affordable (Federal Republic of Nigeria, 1988; Robinson, 2012). Under the military regime, implementation of the

policy between 1993 and 1998 was poor (Goliber et al., 2009).

Nigeria’s return to civilian rule in 1998 brought renewed interest in population policy, including increased awareness of the links among population, development, and the environment and continued concern about the impact of population growth on poverty and food security. The 2004 *National Policy on Population for Sustainable Development* outlined implementation strategies related to nine thematic areas: health, environment, education, communication, population dynamics, youth and adolescents, socio-cultural barriers and legal support, population and development planning, and population statistics (Federal Republic of Nigeria, 2004).

An assessment of implementation of the 2004 policy found that few of the goals and targets were met. The policy included an ambitious goal of increasing the modern contraceptive prevalence rate by at least 2 percentage points per year to 30% by 2015, a goal that did not reflect past trends in contraceptive prevalence. The assessment noted that prevalence towards the end of the policy period was less than 10%. The assessment also identified several factors that affected implementation. Stakeholders had limited knowledge of the content of the policy; the relevance of the policy was limited in light of new and emerging population and development issues and changing policy priorities; the national policy had limited relevance at the State level; the enabling environment, reflecting cultural/religious practices, gender norms, and poverty, was challenging; limited political will existed among policymakers and other influential stakeholders for population activities; lack of leadership on policy implementation by delegated institutions; weak capacity among program implementers; and lack of resources for implementation (National

(continued)



**Box 2.4** (continued)

Population Commission of Nigeria and Health Policy Plus, 2015).

At the 2012 London Summit on Family Planning, the Minister of State for Health of Nigeria pledged that “*The Federal Government of Nigeria acknowledges the strong link between the structure of Nigeria’s population and its national development . . . [and] we are committed to enhancing access to, and utilization of essential, basic life-saving interventions, including the unmet need for family planning*” (All Africa, 2012). In 2017 at the Family Planning Summit, Nigeria adjusted down its pledge to reach a contraceptive prevalence rate among all women of 27% by 2020, through increasing domestic resources for family planning, improving access to services and commodities, and expanding partnerships (FP2020, n.d.).

ICDP expanded the range of stakeholders, notably civil society and non-governmental organizations, involved in determining the scope of population policies. Analysis of development and implementation of the 2000 Population Policy from Uttar Pradesh State in India showed that keys to success included good communication between policymakers and other stakeholders, and multisectoral collaboration that included community participation (Feranil & Borda, 2008). In contrast to its first population policy in 1967, Kenya’s 2012 *Population Policy for National Development* was developed with broad participation. “*Key to the passage of the policy . . . was the patient, inclusive nature of the consultative process . . . that solicited input from stakeholders from the beginning*” (Worley, 2014: 1).

Civil society stakeholders also play a key role in holding governments accountable in population policy implementation. In mid-2019, India had proposed a Population Regulation Bill that would penalize people for having more than two children. Calling the bill misguided, Poonam

Muttreja, the Executive Director of the Population Foundation of India, pointed out more positive policy levers, saying that: “*imposing a two-child norm will add burden on to women, by way of sex selective practices and forced sterilizations. This could result in a setback to population stabilization efforts, as it happened during the emergency period in mid-1970s. The policymakers, MPs and the government should reaffirm India’s commitment towards a rights-based approach to family planning. The government should raise budgetary allocations in order to ensure expanded contraceptive choices for delaying and spacing births and better access and quality of health care for young people. This will not only lead to improved health, but will also visibly improve educational outcomes, raise productivity and workforce participation, and in turn result in increased household incomes and economic growth for the country*” (Sharma, 2019: 3).

Although the bill did not go through, some States in India, including Bihar and Assam, are also considering child limitation policies.

## Implementation

How population policies are developed is better documented than how they are implemented. The Implementing Policy Change Project has developed a framework that divides policy implementation into six tasks, including: legitimizing the policy; building constituencies to support the policy; garnering the resources needed for implementation; ensuring organizational strength for implementation, including adjusting the objectives, procedures, systems, and structures of agencies responsible for policy implementation; mobilizing action to develop implementation plans and strategies; and monitoring impact (USAID, 2000). Similarly, Hardee et al. (2012) describe the policy implementation space in a conceptual framework linking policy development to policy implementation. Understanding the dynamics of this policy implementation space, which includes five elements: institutions,

relationships and power dynamics; capacity; financing; strategic planning and policy barriers analysis; and monitoring and accountability, is important for assessing challenges to implementation. Most policies include a section on institutional arrangements, with the implication that all institutions know their roles and responsibilities and will act collegially to implement the policy.

While some countries, such as Rwanda, have achieved such policy coherence (Chambers, 2012), assessments of policy implementation more often suggest that implementation is hampered by institutional rivalry, lack of clear roles and responsibilities, lack of capacity, and lack of financing (Jain, 1998). Finkle and McIntosh (1994: 13) noted that *“The elaboration of a full-fledged policy – with attainable goals, the expectation of additional resources, and the promise of increased visibility and influence in government circles – is almost invariably accompanied by fierce interagency competition for the new resources and the power and resilience they bring.”* As shown in Box 2.4, an assessment of population policy implementation in Nigeria listed *“lack of leadership on policy implementation by delegated institutions”* as impeding implementation.

Many countries established population councils or commissions to coordinate population activities. Examples include Ghana’s National Population Council (NPC), established in 1994 as a parastatal body in the office of the President to advise the government on population and issues related to it. Some of these agencies instead had family planning in their names, for example, Jamaica’s National Family Planning Board (NFPB) and Indonesia’s BKKBN (in English – National Family Planning Coordinating Board). Uganda’s 2018 draft population policy notes that *“when the National Population Council (NPC) came into existence as a result of the National Population Council Act, 2014, the Council decided to revise the 2008 Population Policy. This was after the realisation that there were emerging population issues and new imperatives that needed to be addressed”* (Republic of Uganda, 2020: ii). These agencies were intended

to coordinate population activities, given the multi-sectoral nature of population policies, with the programs implemented by line ministries. In some cases, a line ministry serves as secretariat to the National Population Council, as is the case in Bangladesh (see Box 2.1).

The effectiveness of these agencies, intended to serve a coordination function and to maintain visibility of population issues, has been variable. A study of implementation of family planning in four pairs of countries found the most effective programs in countries in which the institutions responsible for policy development and implementation were closely linked in the policy process and in which roles and responsibilities for implementation were clear (Lee et al., 1998). Their task is complicated by the broad definition of population and reproductive health that emerged from ICPD and the range of agencies that need to be involved in implementing it. Questions of authority and accountability arise since no single entity in governments has the remit for the wide range of topics that impact population. Writing about ICPD, Reichenbach and Roseman (2009: 13) note that: *“implementation has been uneven, and this variation can be traced back to underestimation in the Programme of Action about how contentious (or difficult in practice) certain aspects of the ICPD agenda would be to operationalize ... [including that] there was no agreed upon strategy at Cairo for Implementing ICPD.”*

## Monitoring and Evaluation

Distinguishing between monitoring and evaluating policies versus programs is difficult. Policy monitoring describes the development and implementation of policies, identifies potential gaps in the process, outlines areas for improvement, and makes key implementing institutions accountable for their activities (Hardee et al., 2012). Programs are monitored through data collection and analysis to determine whether the proposed program activities are being carried out and the intended outputs produced. Once the

policy and program have been implemented, their impact can be determined, with the caveat that, given their breadth, determining the impact of population policies is challenging. Policy documents include a section on analysis of the problems being addressed. Given that many countries have revised their population policies, the newer policies include an assessment of achievements from the previous policy. Assessing both outcomes and the process of policy implementation is important, as illustrated by the assessment of Nigeria's 2004 *National Policy on Population for Sustainable Development* shown in Box 2.4. While many factors contribute to fertility decline, Robinson (2016: 15) calculates that sub-Saharan African “countries with population policies experienced statistically greater fertility declines between 1987 and 2002 than those without such policies: 21 percent compared to 14 percent”.

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## Conclusion

The statement from ICPD25 at the 2019 Nairobi Summit noted that “*Our world has, in many ways, profoundly changed over the last 25 years, and many new issues are influencing the field of population and development, including climate change, growing inequities and exclusion within and between countries, migration, the youth bulge and the prospects of demographic dividends, and increasing demographic diversity*” (United Nations Population Fund, 2019). Population policy discourse is now firmly aligned with sustainable development, including environmental sustainability. Implications of the 2020 COVID-19 pandemic, which have upended the global economy and global health, will be felt for several years.

The demographic divide, with some countries concerned about shrinking populations while others remain focused on growing populations, remains. In all countries, policies to improve health and reduce mortality will continue, with broad support. Migration policies, particularly

related to international migration, will also continue to evolve. Countries concerned about low fertility (Europe, North America, and East Asia) will continue to seek ways to encourage child-bearing, through policy choices that make it easier to combine having/raising children and work. These countries will also continue to advance policies related to population aging.

Countries that remain concerned about rapid population increase will focus on policies to lower fertility, including through expanding access to voluntary, human rights-based family planning along with other policy levers agreed at ICPD, such as interventions to change social and gender norms and to empower women. Policies that infringe on human rights by dictating family size, in the manner of China's one-child policy, will continue to be called out as unacceptable.

While countries are still worried about how their demographic dynamics will have an impact their development and well-being, and seek to ensure that their population trends are in line with development and available resources, population policies will have to be grounded in the human rights of individuals and couples to make decisions – freely and responsibly – on the number and spacing of their children, a right established at the 1968 International Conference on Human Rights in Tehran.

These continuing and emerging issues will be the focus on population policy moving forward. The process of policy development, implementation, and monitoring has evolved positively over the decades since the first population policies were promulgated to include a broader range of stakeholders. Strong policy capacity exists in countries and is expanding to sub-national levels, supported by national and international institutions to provide assistance on population policies and programs. Stakeholders who come together to discuss population policies will continue to be obliged to consider the impact of their choices for current populations and for generations to come. Population policy discussions will remain lively for the foreseeable future.

## References

- Abel, G., Barakat, B., Samir, K. C., & Lutz, W. (2016). Meeting the Sustainable Development Goals leads to lower world population growth. *Proceedings of the National Academy of Sciences*, 113(50), 14294–14299.
- All Africa. (2012). Nigeria: Statement of commitment by the Federal Republic of Nigeria. *All Africa*. <http://allafrica.com/stories/201207110985.html>. Accessed 17 Apr 2021.
- Aloosh, M., & Saghai, Y. (2016). Birth control policies in Iran: A public health and ethics perspective. *Journal of Epidemiology and Community Health*, 70(6), 529–533.
- Ashford, L. S. (2001). New population policies: Advancing women's health and rights. *Population Bulletin*, 56(1).
- Ayala, T., & Caradon, L. (1968). Declaration on population: The world leaders statement. *Studies in Family Planning*, 1(26), 1–3.
- Barroso, C. (2015). Family planning programs: Feminist perspectives. In J. D. Wright (Ed.), *International encyclopedia for the social & behavioral sciences* (2nd ed., pp. 794–798). Elsevier.
- Barroso, C., & Sinding, S. W. (2019). Sexual and reproductive health and rights and population policies: From “either/or” to “both/and”. *The Lancet*, 394(10195), 357–358.
- Bertrand, J. T., Ward, V. M., & Santiso-Gálvez, R. (2015). *Family planning in Latin America and the Caribbean: The achievements of 50 years*. MEASURE Evaluation.
- Bok, S. (2010). Population and ethics. Expanding the moral space. In J. S. Fishkin & R. E. Goodin (Eds.), *Population and political theory* (pp. 5–20). Wiley-Blackwell.
- Chambers, V. (2012). *Improving maternal health when resources are limited: Safe motherhood in rural Rwanda*. Africa Power and Politics Programme.
- Commission on Population and Development. (2019). *Contribution by the 52nd Session of the Commission on Population and Development to the 2019 High-level Political Forum on Sustainable Development*. United Nations, Department of Economic and Social Affairs, Population Division, Commission on Population and Development. [https://www.un.org/en/development/desa/population/commission/pdf/52/Contribution\\_by\\_CPD52\\_to\\_2019\\_HLPPF.pdf](https://www.un.org/en/development/desa/population/commission/pdf/52/Contribution_by_CPD52_to_2019_HLPPF.pdf). Accessed 17 Apr 2021.
- Demeny, P. (2003). *Population policy: A concise summary* (Policy Research Division Working Paper. No. 173). Population Council.
- Dixon-Mueller, R. (1993). *Population policy & women's rights*. Praeger.
- Federal Republic of Nigeria. (1988). *National policy on population for development*. Federal Republic of Nigeria.
- Federal Republic of Nigeria. (2004). *National policy on population for sustainable development*. Federal Republic of Nigeria.
- Feng, W., Gu, B., & Cai, Y. (2016). The end of China's one-child policy. *Studies in Family Planning*, 47(1), 83–86.
- Feranil, I., & Borda, M. (2008). *Achieving Uttar Pradesh's population policy goals through demand-based family planning programs: Taking stock at the mid-point*. Futures Group International, Health Policy Initiative.
- Finkle, J. L. (2001). Politics of population policy. In N. J. Smelser & P. B. Baltes (Eds.), *International encyclopedia of social and behavioral sciences* (pp. 11793–11798). Elsevier.
- Finkle, J. L., & McIntosh, C. A. (1994). The new politics of population. In J. L. Finkle & C. A. McIntosh (Eds.), *The new politics of population: Conflict and consensus in family planning, population and development review* (Suppl) (Vol. 20, pp. 3–34).
- Fishkin, J. S., & Goodin, R. E. (Eds.). (2010). *Population and political theory*. Wiley-Blackwell.
- FP2020. (n.d.). *Nigeria 2017 commitment*. [http://familyplanning2020.org/sites/default/files/Nigeria\\_FP2020\\_Commitment\\_2017.pdf](http://familyplanning2020.org/sites/default/files/Nigeria_FP2020_Commitment_2017.pdf). Accessed 17 Apr 2021.
- GKToday. (2017). Overview of national population policies in India. *GKToday*. <https://www.gktoday.in/gk/overview-of-national-population-polices-in-india/>. Accessed 19 Apr 2021.
- Goliber, T., Sanders, R., & Ross, J. (2009). *Analyzing family planning needs in Nigeria: Lessons for repositioning family planning in Sub-Saharan Africa*. Futures Group International, Health Policy Initiative.
- Government of Malawi. (2012). *National population policy*. Government of Malawi.
- Government of Sierra Leone. (1993). “National population policy for development, progress and welfare”. Government Notice No. 82. *Sierra Leone Gazette*, 124(4), 993.
- Government of the People's Republic of Bangladesh. (2004). *Bangladesh population policy*. Ministry of Health and Family Welfare.
- Government of the People's Republic of Bangladesh. (2012). *Bangladesh population policy 2012*. Ministry of Health and Family Welfare.
- Grindle, M. S., & Thomas, J. W. (1991). Implementing reform: Arenas, stakes and resources. In M. S. Grindle & J. W. Thomas (Eds.), *Public choices and policy reform: The political economy of reform in developing countries* (pp. 121–150). The Johns Hopkins University Press.
- Hardee, K., Agarwal, K., Luke, N., Wilson, E., Pendzich, M., Farrell, M., & Cross, H. (1998). *Post-Cairo reproductive health policies and programs: A comparative study of eight countries* (Report). Futures Group International, Policy Project.
- Hardee, K., Feranil, I., Boezwinkle, J., & Clark, B. (2004). *The policy circle* (Policy Working Paper No. 11). Futures Group International, Policy Project.

- Hardee, K., Irani, L., MacInnis, R., & Hamilton, M. (2012). *Linking health policy with health systems and health outcomes: A conceptual framework*. Futures Group International, Health Policy Project.
- Heisel, D. F. (2007). Family planning in Kenya in the 1960s and 1970s. In W. C. Robinson & J. A. Ross (Eds.), *The global family planning revolution: Three decades of population policies and programs* (pp. 393–417). World Bank Group.
- Hull, T. H. (2007). Formative years of family planning in Indonesia. In W. C. Robinson & J. A. Ross (Eds.), *The global family planning revolution: Three decades of population policies and programs* (pp. 235–256). World Bank Group.
- Isaacs, S., & Irvin, A. (1991). *Population policy* (2nd ed.). The Development Law and Policy Program/Futures Group International.
- Jain, A. (Ed.). (1998). *Do population policies matter? Fertility and politics in Egypt, India, Kenya, and Mexico*. Population Council.
- Kanyoro, M. (2009). *Where is the P in the ICPD?* Remarks at the NGO Forum on ICPD+15, Berlin, September 2–4, 2009. <https://www.populationmedia.org/2009/09/15/where-is-the-p-in-the-icpd/>. Accessed 19 Apr 2021.
- Kingdon, J. W. (1984). *Agendas, alternatives and public policies*. University of Michigan.
- Klingman, G. (1998). *The politics of duplicity: Controlling reproduction in Ceausescu's Romania*. University of California Press.
- Kuo, L., & Wang, X. (2019). Can China recover from its disastrous one-child policy? *The Guardian*. <https://www.theguardian.com/world/2019/mar/02/china-population-control-two-child-policy>. Accessed 19 Apr 2021.
- Kwankye, S. O., & Cofie, E. (2015). Ghana's population policy implementation: Past, present and future. *African Population Studies*, 29(2), 1734–1748.
- Lasswell, H. (1951). The policy orientation. In D. Lerner & H. Lasswell (Eds.), *The policy sciences* (pp. 3–15). Stanford University Press.
- Lee, K., Walt, G., & Cleland, J. (1998). Family planning policies and programmes in eight low-income countries: A comparative policy analysis. *Social Science and Medicine*, 47(7), 949–959.
- Lush, L., Cleland, J., Lee, K., & Walt, G. (2000). Politics and fertility: A new approach to population policy analysis. *Population Research and Policy Review*, 19, 1–20.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- Ministry of Health [Vietnam]. (2018). *Costed implementation plan Vietnam 2018–2020*. Ministry of Health.
- Mirkin, B. (2005). Evolution of national population policies since United Nations 1954 world population conference. Background Paper, Proceedings of the international conference, trends and problems of the world population in the XXIth century 50 years since Rome 1954. *Genus*, LXI(3–4), 297–328.
- NAS. (1974). *In search of population policy views from the developing world*. U.S. National Academy of Sciences.
- National Population Commission of Nigeria & Health Policy Plus. (2015). *Nigeria's 2004 national policy on population for sustainable development: Implementation assessment report*. Futures Group International, Health Policy Project.
- NIPORT & ICF. (2019). Bangladesh demographic and health survey 2017–18: Key indicators. : National Institute of Population Research and Training/The DHS Program, ICF International.
- Population Reference Bureau. (2019). *2019 world population data sheet*. Population Reference Bureau.
- Reichenbach, L., & Roseman, M. J. (2009). *Reproductive health and human rights: The way forward*. University of Pennsylvania Press.
- Republic of Botswana. (1997). *National population policy*. Republic of Botswana.
- Republic of Ghana. (1969). *Population planning for national progress and prosperity*. Republic of Ghana.
- Republic of Kenya. (2012). *Sessional paper no. 3 of 2012 on population policy for national development*. National Council for Population and Development.
- Republic of Rwanda. (2012). *Family planning policy*. Ministry of Health.
- Republic of Uganda. (2020). *National Population Policy*. Republic of Uganda.
- Rob, U., Mutahara, M., & Sprafkin, N. (2003). Development of population policy in Bangladesh. *International Quarterly of Community Health Education*, 23(1), 25–38.
- Robinson, W. C. (2007). Family planning programs and policies in Bangladesh and Pakistan. In W. C. Robinson & J. A. Ross (Eds.), *The global family planning revolution: Three decades of population policies and programs* (pp. 325–339). World Bank Group.
- Robinson, R. S. (2012). Negotiating development prescriptions: The case of population policy in Nigeria. *Population Research and Policy Review*, 31, 267–296.
- Robinson, R. S. (2016). Population policy adoption in Sub-Saharan Africa: An interplay of global and local forces. *Population Horizons*, 13(1), 9–18.
- Robinson, W. C., & Ross, J. A. (Eds.). (2007). *The global family planning revolution: Three decades of population policies and programs*. World Bank Group.
- Sadik, N. (1991). *Population policies and programmes. Lessons learned from two decades of experience*. United Nations Population Fund.
- Seltzer, J. R. (2002). *The origins and evolution of family planning programs in developing countries*. RAND.
- Sharma, N. C. (2019). Is a two-child policy a realistic goal in India? *livemint*, July 15. <https://www.indiatoday.in/news-analysis/story/is-two-child-policy-a-realistic-goal-in-india-1612148-2019-10-23>. Accessed 21 Apr 2021.
- Singh, J. S. (2009). *Creating a new consensus on population. The politics of reproductive health, reproductive*

- rights and women's empowerment* (2nd ed.). Earthscan.
- Solo, J. (2008). *Family planning in Rwanda: How a taboo topic became priority number one*. IntraHealth International.
- Starbird, E., Norton, M., & Marcus, R. (2016). Investing in family planning: Key to achieving the sustainable development goals. *Global Health: Science and Practice*, 4(2), 191–210.
- Thomas, J. W., & Grindle, M. S. (1994). Political leadership and policy characteristics in population policy reform. In J. L. Finkle & C. A. McIntosh (Eds.), *The new politics of population: Conflict and consensus in family planning* (Population and Development Review 20(Suppl)) (pp. 51–70). Oxford University Press.
- United Nations. (2015). *United Nations Expert Group meeting on policy responses to low fertility* (Meeting Report). United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2017). *Government policies to raise or lower fertility* (Population Facts, No. 2017/10). United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2019). *World population policies: 2019 highlights*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations & East-West Center. (2015). *How has the Netherlands managed to sustain near-replacement fertility?* (Policy Brief No. 12). United Nations, Department of Economic and Social Affairs, Population Division/East-West Center.
- United Nations Population Fund. (2019). *Nairobi statement on ICPD25: Accelerating the promise*. United Nations Population Fund. <https://www.nairobisummiticpd.org/content/icpd25-commitments>. Accessed 19 Apr 2021.
- USAID. (2000). *Policy implementation: What USAID has learned*. Center for Democracy and Governance. U.S. Agency for International Development.
- Warwick, D. (1992). *Bitter pills. Population policies and their implementation in eight developing countries*. Cambridge University Press.
- Wattenberg, B. J. (1987). *The birth dearth: What happens when people in free countries don't have enough babies?* Pharos Books.
- Wee, S. L., & Myers, S. L. (2020). Births in China fall to their lowest level in nearly six decades. *The New York Times*, January 17.
- Worley, H. (2014). New Kenya population policy a model for other countries. *New Security Beat*. <https://www.newsecuritybeat.org/2014/05/kenyan-population-policy/>



# Classical Foundations of Past and Present Population Policies

# 3

Yves Charbit

## Introduction

Rather than reviewing each major author of the past,<sup>1</sup> this chapter focuses on four major issues related to population theories. These four issues, which are essential for understanding the very foundations of past as well as present population policies, are as follows: (I) How did the concept of population emerge in modern Europe and how does it relate to the concepts underpinning political power? (II) How was population instrumentalized in authoritarian kingdoms, as illustrated by mercantilism in the sixteenth and seventeenth centuries? (III) Why can we speak of a Malthusian theoretical and doctrinal revolution following the publication, in 1798, of his *Essay on the Principle of Population*, and why and how did this text influence subsequent population

policies? And (IV) can we speak of a bourgeois model of demographic behavior in the nineteenth century? I conclude by outlining the commonalities and differences between historical and modern population policies. Throughout this chapter, concrete examples of the relationships between population theories and policies are presented.

Whereas the history of demography as a social science has been amply explored, the history of the construction of the concept of population has been neglected. Indeed, when specialists in the history of ideas quote, sometimes quite ritually, the few authors who have contributed to the development of demographic thought over the centuries, they systematically ignore a noteworthy paradox: strictly speaking, these great intellectual figures have not put forward *demographic* theories or doctrines as such, but they have certainly given some thought to *population*. Given that political arithmetic (John Graunt, William Petty, Antoine Deparcieux, etc.), unlike demography, did not have a strong theoretical dimension, but simply contributed to the foundation of the life table methodology (tracking the births, lifetimes, and deaths of members of a population over time), how was the concept of population theorized before the birth of demography at the end of the eighteenth century?

If we start with the hackneyed perception that every society is faced with the triple constraint of reproducing itself, ensuring its economic survival, and devising a system of political

<sup>1</sup> From the eighteenth century onwards, Adam Smith, David Ricardo, Thomas Malthus, Frédéric Bastiat, Jean-Baptiste Say, Michel Chevalier, Nassau William Senior, John Stuart Mill, Karl Marx, etc., were among the most important figures. Towards the end of the nineteenth century, the main economic theorists, such as Knut Wicksell, Alfred Marshall, and Léon Walras, showed little interest in population issues. This chapter draws some of its historical information on doctrines and theories from Charbit (2009, 2010), where the reader will find a useful historiography, not included here for lack of space.

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organisation, population thought – going beyond the distinction between theories and doctrines, and independent of conflicts between theoretical and doctrinal systems – can be interpreted as the search for the best solution to the problem of the relationship between population, politics, and economics. It can thus be analyzed in the light of the two great disciplines, namely political philosophy and political economy. Despite the obsolescence of ideas induced by changing contexts, what has been written nonetheless remains valuable because the theoretical efforts of the past have sought solutions to political, economic, and social problems that are still fundamental to population policies today: namely, the degree of freedom of the individual in relation to the State, and respect for property. Thus, doctrinal views on population were first proposed, and then, from around the seventeenth century onwards, theoretical ones were also developed, along with the general progress of rationality. Everything changed in the nineteenth century: demography gradually solidified itself as a science and the major authors of the past became the precursors of today's theories of fertility, mortality, and mobility. Such policies (just like our current population theories) responded to, and sought to provide scientifically based solutions for, contemporary population problems, just as current population theories, first and foremost that of demographic transition, now seek to provide scientifically based solutions for current population problems. The great thinkers of the nineteenth century are still relevant today because they analyzed or anticipated the problems currently faced by our societies: urbanisation, inequality and poverty, education, health, consumption, and improvement of the standard of living.

As for current population policies, how does history help us to understand them? A single example will suffice: that of Sweden. As Rabier (2016) convincingly argued, its official development assistance is, indeed, atypical compared to that of other developed countries. It is based on two axes: on the one hand, gender; and, on the other hand, reproductive health and rights, and sexuality more generally. In order to explain this specificity, one must trace four distinct factors

through time. The first factor is anthropological—the predominance of the stem family. In this family system, the eldest son was the sole heir to the property, and therefore the division of land was limited; this allowed the middle-class to own more than 50% of the land and to form a stable agrarian society, soon to become a political force in Parliament. Second, unlike in Germany, women received some education, enabling them to play an extremely important role in the transmission of the values. Hence Sweden's progress in gender equality, which is exceptional in Europe. The third factor is historical; the alliance of the Crown with the peasants against the nobility led to the constitution of a peasant state, alongside the other three orders – the nobility, the church, and the bourgeoisie, respectively. The fourth factor concerns political history: after the Golden Age of the seventeenth century, when Sweden was a strong European power, it gave up its ambitions and withdrew into itself partly because of an insufficient demographic base. The above factors not only shaped social engineering, as implemented in the twentieth century, but also informed Sweden's unique national overseas development policy: early recognition of gender and reproductive health issues; lack of foundation in the colonial past (in contrast to, for example, France and England); and no prioritization of capitalistic strategies of control at an international scale, accompanied by market conquests and control of raw materials (in contrast to the United States).

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### **Before the Nineteenth Century: The Emergence of the Concept of Population and Political Power**

The relationship between power and people was explicitly articulated over the centuries. In sum, political power was believed to benefit from a large population, while economic power increased the more when production and consumption went hand in hand. This argument on politics and population was not limited to national borders; anything that contributed to power and wealth was positive, no matter where the



contribution came from (hence the views on colonisation, emigration, and imperialism). Indeed, the exploitation of the resources of the New World led to the emergence of significant economic and demographic doctrines, systematised with the so-called “Colonial Pact” and the plea for putting the colonies under the king’s authority. More generally, there was frequent reference to the size and the growth of population, in terms of strengthening or disputing the ruling power. If power depended on population growth, the latter in return was a sign of good government. Conversely, when exercising its power, any bad government could be blamed for reducing the strength and happiness of the nation. The depopulation of Europe as compared to Antiquity was a veiled criticism of absolute monarchy, particularly in Montesquieu’s *Lettres Persanes* and *De l’Esprit des Lois*. For example, Montesquieu’s criticism of the way Catholic Spain treated its colonies was an oblique reference to absolutist Catholic France. However, it is necessary to go beyond this basic factual observation of the instrumentalization of men (wherein the condition of the king’s subjects acts as proof of the efficiency of his ruling), to what we today qualify as demographic indicators of results. It is problematic to attribute the birth of demography to the convergence of political philosophy, moral philosophy, and, later, political economy, because this attribution assumes that the very concept of population was forged and stabilized, which is historically untrue. To resolve this paradox, one must turn to the fundamental, largely intertwined issues that allowed the concept of population to emerge, namely power and sovereignty, ownership and conflict of interests, and absolutism and the emergence of individualism.

### Power and Sovereignty

Students and scholars familiar with writings on demography are well aware that demographic works generally deal with a given level of observation and analysis, that of the individual, the family, or the community to which a person belongs (middle level), or that of the country

and its institutional system, particularly its population policies (macro level). Theoretical models used for analysing mortality and fertility are, for example, explicitly built on these types of factors (Davis & Blake, 1956). Were these levels taken into consideration before the emergence of demography as a proper discipline and if so, how were they thought of and reflected upon? Ancient Greece had a homothetic approach according to which the individual, the city, and the cosmos were in agreement with one another. However, within the Judaeo-Christian system of values, the divine and the earthly worlds are essentially different and placed in a hierarchical order. We hold that the problems of sovereignty and the legitimacy of power was at the heart of the relationship between the state, the family, and the individual, a problem to which political philosophy provided answers that were at times contradictory. Robert Filmer, the English royalist supporter of Charles I, defended in *Patriarcha* (Filmer, 1884; first published in 1680) the idea that Adam, as the first man and the father of humanity, received from God the absolute power of domination and that this power was transmitted from generation to generation to the present sovereigns. Samuel von Pufendorf (1632–1694) rejected Filmer’s “false principle” as the latter had made the mistake of calling the “State” a family. Pufendorf (1740; first published in 1672) based his arguments on a quasi-functionalistic, or at least finalistic, logic according to which it is not possible to assimilate the two powers. The goal of uniting families and that of establishing civil societies being totally different, it followed that several parts of Sovereignty did not belong to heads of families. This careful distinction led to a plea in favor of absolutism because sovereignty was never exercised better than in monarchic regimes.

Today, it seems obvious to us that political power is by nature different from power over the family. This has not always been the case among the theorists of sovereignty, an issue intimately linked to that of the exercise of power. Jean Bodin and his theory of absolute sovereignty are at the very roots of the concept of population. In 1576, the first book of Bodin’s *Les six Livres de la*

*République* (Bodin, 1961) opened with a sentence that has now become famous: “*The Republic is a just government of several households and what is common to them endowed with sovereign powers*”. The first of the “households” envisaged by Bodin was the family, which he placed before seigniorial power, the Senate, the Magistracy, the corporations, and the communities. It was the “*true model of government for the Republic*” because “*domestic power resembles sovereign power*” (Bodin, 1961: 66). Thus, this basic work on the theory of absolute sovereignty asserted that, in essence, sovereignty, which is the basic principle of politics, was not different in the private and public spheres. If, for twenty-first century readers, it goes without saying that a state, no matter how weak, is sovereign in international law, the argument advanced by Bodin to support his thesis of the absolute nature of sovereignty is quite unexpected. It was centered on the *non-measurable* nature of sovereignty, which does not depend on size but resides in *each unit* that is counted: “. . .and as during the counting of houses a small household is also counted as a hearth like the biggest and richest house in the city, similarly a small King is as sovereign as the greatest Monarch on earth” (Bodin, 1961: 68). Thus, political sovereignty drew its legitimacy from within itself and at the same time it did not differ in essence from the private sovereignty exercised within the family. Precisely because it was crucial to identify the units vested with sovereignty, it must be concluded that Bodin did not consider population independently of politics.

Could not sovereignty then be embodied in the family? One could imagine a political regime where patrician families would decide to govern without a sovereign. Jean Bodin, who clearly identified the danger of this deadly germ for absolute sovereignty, established the principle of the strict separation of the private from the public sphere. He claimed that the exercise of sovereignty was impossible if there was a confusion between the public and the private, but in both spheres the same fundamental principle should prevail: the family as well as the subjects should be submitted to the authority of a single individual—the head of the family, on one side; the

Prince, on the other. Three centuries later, demography introduced this dyad as an implicit model in Western societies and extended it to underdeveloped countries. It did not really matter whether the residential or economic structures and forms varied greatly according to whether one was dealing with a nuclear family, an extended one, or a large compound; or whether, according to the nature of the founding union of the family – monogamous or polygamous – the concrete functioning of the family unit was quite different. For instance, during a survey or a census, fieldwork and subsequent analysis of data always identify the head embodying one of the poles in the relationship of subordination.

### Property and Conflict of Interest

Property, as one of the core concepts of political philosophy, encouraged the emergence of the concept of population on more than one account. The spatial organization of society was inseparable from property, as if space and property were two functionally equivalent concepts. It was crucial for the smooth running of societies to root individuals within a clearly delimited and identified space—i.e., within their property. Since then, the logic has not undergone any fundamental changes.

In present-day Europe, a household is defined first and foremost as a restricted number of persons, whether united or not by family ties, sharing the same lodging. However, it has been found necessary, especially in less developed countries, to extend the definition of the term household and consider it also as a production unit. But whether one aspect or another is stressed, thinking in terms of households amounts to conceptualising population on the basis of its living space in relation to its day-to-day existence and especially its ties to land. What are the theoretical foundations of the concept of property? From the Middle Ages, even if the distinction between *potestas* (power over men) and *dominium* (power over things) was clear, scholastics believed in the common divine origin of this dual power over men and things.

Subsequently, there was a progressive shift against Rome and in favor of the sovereign, who cumulated both powers and exercised them in the name of God. It was under these circumstances that Grotius (1583–1645), and later Pufendorf, elaborated the theory of the eminent domain, according to which the Prince's right to all the properties in his Kingdom preceded that of his citizens and, as the trustee of the divine will, it was his duty to ensure that their ownership rights were respected.

In the middle of the eighteenth century, the French physiocratic school, who adhered to this intellectual tradition, built the most sophisticated theory under which the relation between population, economics, and politics was closest to becoming an organic link. Since property was the foundation on which society was built, it was up to the authority to defend it. But since the King was also the biggest landowner and enjoyed a large income from his landed properties, the Physiocrats were interested in maximising his wealth. Their entire theory of taxing the net product flows from it: increasing the yield of the taxation system made the royal power stronger. With the French Revolution of 1789 and the assertion of the right to own property independently of any form of religious legitimacy, the contribution of the theory of property to the conceptualization of population tended to accelerate, to such an extent that in the nineteenth century property accounted not only for population but also for the *behaviors* exhibited by individuals and families, in particular in terms of mobility and fertility. By contrast, in the eyes of the contemporaries of Malthus (1766–1834), the instability of the apprentices and companions before they became masters, in the same way as the unstable proletariat increased as a result of rural exodus, itself driven by the Bills of Enclosure and the Industrial Revolution, attested *a contrario* to the stabilizing role of property. Likewise, as early as the 1840s the French liberal ideologues argued that the *Code Civil* tended to favor a decrease of rural fertility: since property at every succession was shared equally, peasants sought to reduce the number of descendants to avoid breaking up their property into too many parts.

Today, in the field of population policies, the interests of individuals and collective interests, far from converging – as liberal ideology claimed they did – are in fact opposed. In industrialized countries, the conflict is subjacent to the issue of generation replacement: for governments, the fertility of couples should not drop below two children, otherwise, since population renewal is not guaranteed, the spectre of the bankruptcy of the pension system emerges. Yet nothing justifies this economic calculation for couples. If they have three children instead of two, their expenses increase without any real compensation in terms of resources, since family allowances only partially compensate for the extra expenses entailed by a third child. In less developed countries – and still in the name of the general interest – national population policies, which are often driven by the pressure exerted by more developed countries using the financial weapon of multilateral or bilateral aid, encourage poor people to limit fertility. In order for the gross domestic product *per capita* to increase, the simplest solution is to decrease the denominator (the total population) so that the per capita wealth may increase, as suggested by the Malthusian allegory of the banquet in the second edition (1803) of the *Essay*. Once again, this logic, which emphasizes a macroeconomic rationale, conceals another rationale—that of individuals and families. An illiterate peasant couple with six children knows that its security depends on its large offspring, since family solidarity is required to protect parents in their old age in the absence of any institutional system of health, accident, or disability protection or any form of unemployment or pension support. In other words, none of the three words in the phrase “national economic growth” conveyed any form of rationality for a couple faced with this situation. Yet national population policies tend to privilege the higher interest of the country, either coercively (as is the case in China) or through persuasion (as tends to be the case elsewhere).

The problem is therefore to ensure the coherence of individual acts and collective functioning. What were the responses of political philosophy to this problem of divergent interests at the demographic level? One line of thinking that can be

traced to Saint Paul referred to the divine origin of power, whereby political organisation was the result of the delegation of *potestas*, or power over men, to a sovereign. The other, which came much later, postulated with Grotius that the principle of natural law was to conform to reason, while the restriction of freedom was consistent with a freely accepted contract. Such a principle, which implied an atomistic conception of society, had profound consequences because attributing the same political weight to each person meant dividing society into distinct units and this opened the way for demography.

Once the sovereignty of the Prince over his subjects was established, and later, in liberal democracies, adherence to the social contract guaranteed, how could power be strengthened? Over the centuries, the consensus was unanimous. The Prince had to know his people, to know them as an entity, but also with regard to individual behaviors. But as the Prince's subjects had room for negotiation with him, he had to obtain their support in order to strengthen his power. Hence the importance of education, which could contribute to rallying informed opinion, that of the elites, which precisely tended to challenge the absolutist monarchy. Discourses on the necessary education of the people as a condition and proof of social and political progress tended to flourish from the eighteenth century under the rule of the enlightened (as opposed to absolutist) and later, constitutional monarchies, and even more so in republics. When it came to power, the bourgeoisie instrumentalized education notably during the Industrial Revolution to combat the demands of the proletariat. If the latter had been made more aware of its own interests, it would have seen that destroying machines, going on strike, and having too many children was hardly reasonable. Progress should occur in Europe but also in the colonies, where the burden of the civilizing mission weighed so heavily upon the white race. As an example of a still more remote avatar, current demographic theories of fertility agree unanimously in conceiving education as a decisive factor of reproductive behavior.

The very idea of an opinion that one had to try to rally to the Prince by means of education

implied considering the population as an amorphous aggregate of individuals, unstructured into social or economic groups with their own dynamics. Let us return to the absence of any socioeconomic dimension in the initial conceptualization of population, since it still largely characterizes demography today, in spite of recent evolutions in research on networks. In practice, the process merely involves collecting individual data which are then aggregated. Adding up individual answers is deemed to be sufficient as an objective measure of collective behaviors. This bypasses reality. Public opinion surveys, including surveys relating to demographic issues (such as questions concerning desired fertility or contraception) are the best examples. To say that a representative national sample of men and women gives two as the ideal number of children tells us very little about the driving factors of fertility within society, because of the absence of any serious reflection on the social processes of the construction of opinions on desired fertility. Likewise, the concept of potential demand for contraception, which is used for programmatic purposes in less developed countries, is too often cut off from the economic, social, cultural, and even political mechanisms that underly the reproductive behavior of men and women. Evaluators complain about the poor results of family planning policies, which are nonetheless supported by considerable financial means. In fact, the object has been confused with the method.

### **From Absolutism to Individualism**

In Europe, since the sixteenth century, a political doctrine developed which attacked the central principle of absolutism, the source of the legitimacy of power. In his struggle against Catholicism, Jean Calvin had indeed developed the theory of the right of resistance in 1536, but without questioning the legitimacy of power. In 1625, Grotius set a first limit to sovereignty in *De jure belli ac pacis* (*On the Law of War and Peace*) (Grotius, 1925). A little later (in 1651), Thomas Hobbes (1588–1679) theorized in his *Leviathan* the pacts of association and submission: each man

renounced to govern himself if others did the same and all relied on a sovereign who exercised power (Hobbes, 1946; first published in 1651). This contract of association had no spiritual foundation; instead, it was strictly materialistic, and political organization was an artifice which excluded violence, or rather reserved it for the sovereign. What Baruch Spinoza (1632–1677) developed in 1670 in the *Tractatus theologico-politicus* was more fundamental and proved to be much more dangerous for the sovereign. He drew a careful distinction between the essence of philosophy – that is, the exercise of reason – and religious faith. Starting from the exercise of reason, Spinoza destroyed the authority of religion and above all he denounced the use of the Church by the monarchy to justify a divine right to rule. The work was revolutionary because, by weakening the religious foundations of absolutism, it opened the way for the questioning, through the very exercise of reason, of all forms of abusive power. The decisive step was taken by John Locke (1632–1704) in 1690 in his *Two Treatises on Civil Government* (Locke, 1984; first published in 1690). Locke established, on a purely rational basis, and independently of all metaphysical thought, the civil contract that was the foundation of any political society. Locke’s work was perfectly suited to the bourgeoisie that had triumphed in Britain with the Glorious Revolution of 1688. Locke paved the way for English political liberalism, at the very moment when the constitutional monarchy was definitively established by the Bill of Rights of 1689, which declared illegal any form of encroachment by the royal authority on the prerogatives of Parliament (legislative activity, creation of courts of justice, collection of taxes, etc.).

We have dwelt on this long process of undermining absolutism, because it was a decisive, albeit distant, factor in the emergence of demographic thinking. Little attention has been paid to it, despite the fact that absolutism has two crucial implications. On the one hand, the fact that the Monarch derived his legitimacy from the Sacred made any disobedience fraught with consequences: The Holy, Catholic, and Apostolic Church as well the Anglican church and

Lutheranism helped to ensure the authority of European kings and princes. On the other hand, absolutism considered the population as a shapeless mass subject to the sole interest of the Prince, through its three utilities, the tax, the workforce, and the soldier. The King, father of his people, had to protect them in the name of Christian charity, and some measures were certainly taken. Especially in Italy, Spain, and France, they were generally implemented by the many orders of the Catholic church which provided relief when famine and misery or even plague struck the people. But neither the Sun King (Louis XIV), nor indeed any other European monarchs and princes, could simply conceive that the men and women who survived as best they could – and rather badly at that – in the countryside, in the villages, and right up to the gates of their castles, could behave in a manner worthy of the slightest interest. Throughout the nineteenth century and even into the twentieth century, religion was instrumentalized for the purposes of controlling the behavior of men and, above all, of women. This can be seen in the debates over contraception (and subsequently abortion) in France in the 1960s and 1970s, when the conservative parties and pressure groups applied the “right to life” to fetuses which were forcefully claimed to be babies, i.e., persons to be. Contraception and abortion were therefore described as crimes. The instrumentalization of religion also took place at the time of the International Conference on Population and Development held in Cairo in 1994, where a common front against abortion was established between the Vatican, Islamic conservatives, certain North American evangelical protestants, and some extremist rabbis. In short, what the questioning of absolutism ultimately enabled was the emergence of individualism, and more specifically the notion that everything cannot be analysed solely and necessarily in relation to the Prince. When the French *Philosophes* fully developed the idea of tolerance, it was precisely the recognition of subjects as such facing the Prince that was at stake, and any serious archaeology of demographic thought must begin by digging there.

## The Malthusian Revolution: Malthus and Demo-Economic Growth

Even if we were to admit that political philosophy has always been the basis of thinking on population since Classical Greece, there is no doubt that its place was redefined in the eighteenth century when, in England, Adam Smith (1723–1790) and classical economics incorporated population into a totally different conceptual framework, provided with new analytical tools (Smith, 1970; first published in 1776). By defining an actor, namely *homo œconomicus*, in his dual role of producer and consumer, economics somehow removed population from the sphere of political philosophy, but without losing its footing in moral philosophy. *Homo œconomicus* was endowed with reason and governed by the pursuit of his economic interests which enabled him to reach a higher state of well-being. More generally, because moral philosophy since Jeremy Bentham (1748–1832) postulated the convergence of interests, society as a whole would be richer if all actors acted rationally. Besides, by conceptualising the three factors of production, namely land, capital, and labor, and by defining markets where demand and supply balance each other in relation to a price, economics could theorize the dynamics of population. The latter increased along with the demand for labor and adjustment took place through changes in marriage and fertility: employment opportunities encouraged workers to marry earlier and have more children and since workers constituted the majority of the population, their behavior induced the growth of the population as a whole. Once this adjustment mechanism is defined, differences in demographic behavior were automatically corrected: when fertility was too high, wages went down because there was more competition in the labor market.

However, Adam Smith's contribution did not allow for a shift from *homo œconomicus* to *homo demographicus*. Malthus must be credited for having theorised, from 1798 onwards, the demographic actor in the current sense of the term. He remarkably integrated the major demographic variables: mortality, nuptiality, fertility and, to a

lesser extent, mobility, into his conceptualization of population dynamics. It went much further, identifying the main mechanisms for adjusting fertility, contraception, and age at marriage in particular, and the major causes of mortality: epidemics, famine, and war. But he did not confine himself to the considerable progress that constituted what we would today describe as the systematic deconstruction of these variables. Malthus was one of the first to think in terms of the interactions between variables, which is one of the major aspects of modern demographic analysis. But his work poses a serious problem. A superficial reading of the *Essay on the Principle of Population*, rehashed *ad nauseam* since 1798 when his first work was published, has forged a simplistic vulgate that he was hostile to population growth. In reality, a huge misunderstanding surrounds his work, for, as is often the case with great thinkers, he is frequently quoted without having really been read. Malthus, far from denouncing the *risk of overpopulation*, proposed a profoundly original *model of demo-economic growth* and we have shown that there is no contradiction between the two opinions. This model is almost totally unknown—an upshot of the pseudo-scientific arguments and ideological assertions that have been constantly and wrongly asserted over the centuries in Malthus' place, while invoking him as the supreme authority.

## The Consequences of Demographic Dynamics: Poverty or Increased Agricultural Production?

Let us begin with the thesis of the double progression described in the first edition (1798) of the *Essay on the Principle of Population*. The geometric growth of the population (for example 1, 2, 4, 8, 16, 32, 64 million people, i.e., a doubling of the population every 25 years) was infinitely faster than that of the resources indispensable to its survival (which increased to the maximum according to an arithmetic progression (for example 1, 2, 3, 4, 5, 6, 7 million tons of wheat)). While the imbalance was only potential, since

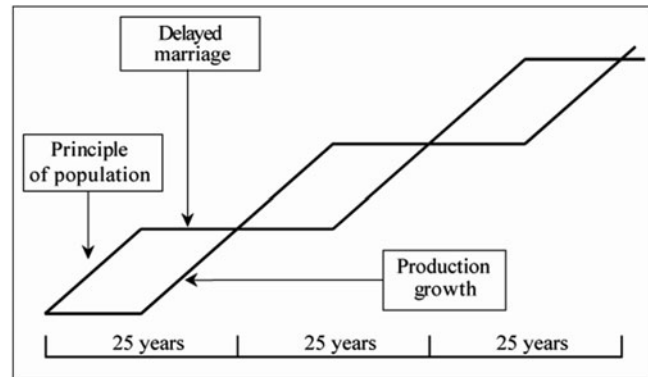
population growth was immediately punished by famine and death, it was nonetheless a terrifying and permanent threat, wherein excessive fertility was inevitably associated with increased poverty. Malthus thus asserted that regulation by mortality prevailed for the “lower classes” of England, which would constitute in the terminology of the following century the “proletariat” of the Industrial Revolution. But it is generally ignored that, a few pages later, he developed a second demographic and economic model of *permanent growth* in the agricultural sector, in total contradiction with the bio-demographic first model in which the ceiling of subsistence necessarily curbs the growth of the population. As we shall see, the postponement of marriages and births, when harvests were poor, had become the driving force behind simple fluctuations in population growth. The mortality of the first model no longer played any role and there was no longer any decrease in the population size.

Like all classical economists, Malthus’ conception of dynamics meant, at least in the first *Essay* (though not in his later works), analysing the fluctuations around a point of equilibrium in distinct markets—in this case, the labor market and that for agricultural produce. We may briefly recall the concepts related to the employment market and their demographic implications. Agricultural (or even industrial) workers *supply* their labor: if the population increases, it will be followed by an increase in the supply of labor. Farmers *demand* labor for production; wages are the point of intersection of the curves representing supply and demand. Hence according to the classical economists, economic factors govern demographic behavior, as is clear in Malthus’ formulation of the demo-economic dynamic: “*The constant effort towards population, which is found to act even in the most vicious societies, increases the number of people before the means of subsistence are increased. The food, therefore, which before supported seven million, must now be divided among seven million and half or eight million. The poor consequently must live much worse, and many of them be reduced to severe distress. The number of labourers also being above the proportion of the work in the market,*

*the price of labour must tend toward a fall. The labourer therefore must work harder to earn the same as he did before. During this season of distress, the discouragements to marriage, and the difficulty of rearing a family are so great that population is at a stand. In the meantime, the cheapness of labour, the plenty of labourers, and the necessity of an increased industry amongst them, encourage cultivators to employ more labour upon their land, to turn up fresh soil, and to manure and improve more completely what is already in tillage, till ultimately the means of subsistence become in the same proportion to the population as at the period from which we set out. The situation of the labourer being again tolerably comfortable, the restraints to population are in some degree loosened, and the same retrograde and progressive movements, with respect to happiness are repeated.”* (Malthus, 1970a: 77; first published in 1798). In this model (see Fig. 3.1), unlike the previous one, the fluctuations are part of a long growth movement. In a nutshell, the principle of population, an independent variable, induced the growth of agricultural production and, contrary to the first model, the population was regulated not by mortality but by marriage.

It was the principle of population, an independent variable, which induced the growth of agricultural production, and population regulation was no longer achieved through mortality, unlike in the first model, but through nuptiality. Malthus therefore very clearly proposed an explanation for the demographic slowdown through nuptiality. Was this variable relevant and had mortality lost its role as a positive check? The quality of the observation deserves to be underlined: Malthus glimpsed the European model of nuptiality that Hajnal would establish in 1953 (Hajnal, 1953, 1965). In his *Essay* of 1798, Malthus described the motivations of English farm laborers and those of servants and maids living with their employers (Malthus, 1970a: 91). In England, more than in any other country, there was “*a large proportion of late marriages and a large proportion of people who never marry*” (Malthus, 1970b: 237, 264; first published in 1830). He went on to argue that these two characteristics

**Fig. 3.1** Malthus' second model: regulation by marriage. (Source: Charbit, 2009)



were the two main ways in which population growth in Europe was regulated (using the concept of the preventive check), while the positive check (mortality) was a thing of the past (Malthus, 1970b: 251, 264).

### Demo-Economic Growth

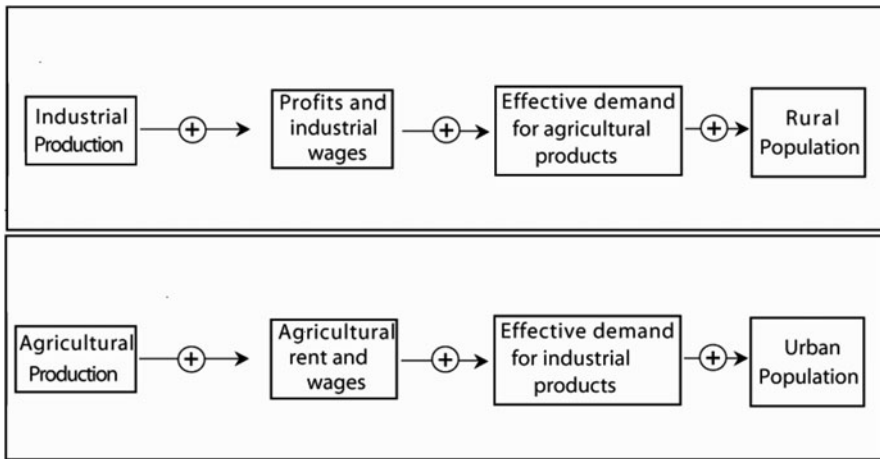
As an acute observer of the conditions of his time, Malthus was perfectly aware of the misery created by the Industrial Revolution, and this naturally led him to broaden his analysis beyond the agricultural sector and to take industry and trade into account. While in the 1798 *Essay* he was resolutely hostile to industrialization, in contrast his later works, notably the *Principles of Political Economy* published in 1820 (Malthus, 1989), justify industrialization. His argument is particularly interesting because it was both theoretical and empirically based on the observation of the spread of well-being.

Malthus saw that the price of industrial products was falling due to mechanization and mass production of manufactured goods, and consequently the standard of living of both rural and industrial populations rose, due to the relative decline in the price of industrial products compared to agricultural prices (*Essay*, Seventh Edit., II: 134; see Malthus, 1965; first published in 1827). As described in Fig. 3.2, the agricultural production generated an income which was partly used for paying production costs (laborers' wages, maintenance of fixed capital and cost of

other inputs), while the net income was used for the farmers' and landowners' expenditures on consumption. The laborers' wages and other income from agriculture would be spent on the purchase of *industrial* goods. They thus constituted an effective demand for the industrial sector, that would stimulate the growth of the industrial population (which was essentially urban) in response to the increase in the demand for labor. At the same time, the fall in the price of industrial products would lead to a rise in the standard of living of the rural masses; they would be able to access goods providing comfort and even luxury goods that were previously beyond their means. On the other hand, wages disbursed by industry would be partly allotted to the purchase of food articles (cereals and vegetables, and meat by those who are wealthier) and thus constituted another effective demand for the *agricultural* sector. It would also stimulate demographic growth, but this time among the rural population. Evidently, *within* each sector, wages could not constitute an effective demand because entrepreneurs, like farmers, could not rely on a purchasing power that existed before investment.

To conclude, Malthus was actually the first great theorist of demo-economic growth. As an attentive witness to England during the Industrial Revolution, he first showed that the complementarity of the three major sectors – agriculture, industry, and trade – was the most favorable to employment as well as to production and its national and international marketing. Long-term





**Fig. 3.2** Exchanges between sectors and demographic growth. (Source: Charbit, 2009)

Note: (+) indicates a positive relation: when industrial

production rises, the *wage* bill rises (but not necessarily at the same rate as wages)

demographic and economic growth were therefore compatible. In the short term, demographics adapted to economic conditions. In times of crisis, the postponement of single marriage and the increased use of contraception by married couples reduced fertility and thus adjusted the labor force to the needs of the economy. Conversely, in the event of economic recovery, fertility could increase rapidly, with a delay of five to ten years, because in his time children were put to work very early. The reasoning was therefore conducted in the short and long term, at the macro-demographic and economic levels and at the “micro” level of individual behavior. We are far from the simplistic double geometric and arithmetic progression.

### The Malthusian Legacy and the Political Instrumentalization of Fertility

It is well known that the success of Malthus’ *Essay* first published in 1798, and of its later editions too, is explained by the socioeconomic situation in England. As a result of the exceedingly poor harvests in the years 1795–1796, 1800–1801, and 1812–1813, combined with the

trade blockades of the Napoleonic Wars, a marked inflation prevailed during the period 1794–1813 and the price of wheat skyrocketed; a quarter (28 lbs), which was worth 46 shillings on an average between 1777 and 1793, rose to 83 shillings (1793–1813), and the same was true of other cereals. Following the reform of the Poor Laws and the spread of the *Speenhamland System* devised in May 1795 by the Justices of the Peace in Berkshire (according to which the amount of aid was decided by the price of wheat and the number of children), the contribution of the parishes to the upkeep of the poor assumed the proportions of a national tax, data about which speaks for itself: £2 million in 1784, 4 million in 1803, and 8 million in 1818. Thus, Sidney and Beatrice Webb wrote in 1929: “*To a generation unaccustomed to public expenditures, such a sum seemed stupendous.*” (Webb and Webb, 1929II, 2). The idea that the Poor Laws contributed to the continuation of poverty by encouraging the poor to multiply thoughtlessly, and that population could be regulated only through mortality, had found its theoretician. It is easy to understand why the reasoning in the anonymous pamphlet seemed perfectly convincing to those who read it in 1798, in a situation of ideological, political,

and social unrest. One of the key elements was the publication by William Godwin in 1793 of *An Enquiry Concerning Political Justice* (Godwin, 2013), that Malthus sought to refute. In his ideological struggle against the English Radicals, particularly Godwin, Malthus in 1798 brandished the fearsome weapon of excessive fertility as the cause of misery to refute the credo that bad governments were the cause of suffering: the demographic problem was biologized against a background of utilitarianism. Mortality was, in his view, the surest indicator of human misfortune, at a time when entire social classes, especially the proletarianized English peasants, were being swept away by the whirlwind of the Industrial Revolution. The double geometric and arithmetic progression theoretically justified the claim that England's most disadvantaged social classes were in misery because of their excessive fertility. The theory thus became the basis of a population doctrine: the denunciation of the "irresponsible" behavior of the poor, repeated throughout Europe until about 1870, fed the conservative discourse which was careful to stifle any questioning of the social order.

Similarly, current policies to control population growth, which also define themselves as "Malthusian", aim to remove the obstacle of high fertility, considered devastating for development. However, this formidable ideological weapon was gradually abandoned when it became clear that the middle- and lower-classes were having fewer and fewer children while their standard of living was rising. Malthus even fell into relative oblivion when fears of depopulation began to emerge. However, he soon experienced a second posthumous glory when the growth of India became apparent, whose enormous population was plunged into chronic famine. Hence a deep disagreement between those who believed that the demographic bomb was the cause of underdevelopment and the representatives of some developing countries who, on the contrary, affirmed at the memorable World Population Conference in Bucharest in 1974 that "the best contraceptive was development". As for the current debates on the world population bomb of eleven billion people by 2100 and on sustainable

development, they implicitly or explicitly refer to Malthus. His shadow therefore hangs over demography and more precisely over its ideological and political instrumentalization. Such historical twists and turns could suggest that Malthus' thinking can be summed up in this model of double progression, whose irrefutable mechanics continue to fascinate people's minds and exercise an astonishing power of attraction.

Let us conclude on the contrasting fates of Malthus the economist and Malthus the demographer. Strikingly enough, the economist fell into oblivion while the demographer went down in history. In 1820, Malthus published his *Principles of Political Economy* (Malthus, 1989)—at least as important as the *Principles* of David Ricardo (1772–1823) (Ricardo, 1965; first published in 1817). Marx and Keynes were not mistaken when they found in Malthus decisive elements for their respective theoretical constructions. Contrary to the optimism of classical economic thought that crises were always followed by a return to equilibrium, Malthus was the first to have the intuition of a general glut of the markets, of a structural crisis of underconsumption, which Keynes theorized a century later. Malthus, in the midst of the triumph of liberalism and the doctrine of the *État gendarme*, recommended the implementation of public works programmes in 1820, 110 years before Roosevelt's Keynesian-inspired New Deal. Malthus' ideas were too disturbing and could only be ignored.

As for Malthus the demographer, whose shadow hovers over demography and more precisely over its ideological and political instrumentalization, the "Malthusian scarecrow" has been constantly resurrected over the centuries by ideologues who defended the bourgeoisie against the increasingly strong demands of the workers. The latter, like the bourgeoisie, had only to wisely align their expenditures with their resources; that is, to reduce their excessively high fertility, which prevented them from improving their standard of living. Today, the alarming demographic projections on the world population and in particular on Africa exert a kind of fascination, fuelled by a sense of urgency, while the problems of

under-development are far less mobilizing at the level of public opinion. One becomes accustomed to the misery of others, but the demographic “bomb” is frightening. History repeats itself.

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### **Bourgeois Universalism and the Management of Demographic Behaviors**

Measuring entire social groups against the yardstick of their demographic behavior appears self-evident today. We are used to thinking of society in terms of its social morphology, and therefore we find it both normal and conceptually useful to attribute demographic, economic, cultural, and other characteristics to various social groups. A closer look shows that this interpretation of society is however quite recent, especially when political stakes are involved. The true intellectual revolution explaining the emergence of demographic categories is the bourgeois proclamation of the *universality* of its own values: by claiming that it was, as a class, a reference model because the behavior of its members was founded on reason and was the source both of their own individual happiness and of collective progress, the bourgeoisie imposed its criteria on other classes. From this, it followed that all other groups were judged according to their demographic behavior. Thus, fertility and nuptiality were major elements of proof in the eminently bourgeois analyses of social mobility in Europe, and one could no doubt find traces of them in more recent sociological works. How was this strategy theorized in the nineteenth century?

### **The Standard of Living Theory**

In France and England, an original ideological synthesis – strictly speaking, demo-economic – was carried out between 1830 and 1870. The period is not insignificant: it was that of the triumph of the Industrial Revolution, especially in England, accompanied by political instability in France, with the Revolutions of 1830 and 1848. It is true that the condition of the working classes

improved, even though inflation often widened the gap between monetary and real wages, and despite several severe economic crises, which were linked to the violence of the competition of anarchic capitalism and resulted in periods of acute unemployment. The harshness of labor conditions in the 1840s in England is well known. Nevertheless, many consumer goods became accessible to the masses. In France, for example, during the 1850s and 1860s, a vast literature described improvements in the housing, clothing, and eating habits of the workers (in France Baudrillard, 1872; Dameth, 1878). In both countries the mechanization of industrial production allowed the populations to have access to goods that had been inaccessible until then, since they were now mass-produced and very cheap. As a result, the standard of living improved, even among the workers, despite the harshness of exploitation. Far ahead of present feminism, John Stuart Mill (1806–1873) indicated “*among the probable consequences of the independence of women, a great diminution of the evil of overpopulation*” (Mill, 1970: 125; first published in 1848).

The establishment of free trade between France and England in January 1860, followed by several others in Europe, came at the right time: it was presented as a decisive factor in access to well-being in the population, thanks to the low cost of products. According to free trade theorists, the expansion of markets stimulated production and consumption. The ruthless elimination of labor from the fragile sectors of national economies unable to withstand foreign competition was, of course, overlooked. And in the colonies, free trade wreaked havoc; to protect its textile industry, England eliminated Indian textiles, reducing the colonized to misery. Once again, the adage that freedom favors the fox in the henhouse was fully confirmed. The free-trade model was still Malthusian in the sense that individual responsibility remained indispensable: without it, the principle of population would destroy the benefits of the establishment of free trade, with overly fertile couples inevitably sinking into poverty (see, for instance, Garnier, 1857).

A further step towards the abandonment of Malthusianism as fearful specter was taken with the argument of the standard of living. In order to maintain their standard of living, couples reduced their fertility, and this calculation was extended to the future: the smaller the number of children, the greater the chances for each of them to be healthy, to have access to education, and to have a secure future. The process was even considered almost *automatic*. Because acquired well-being was the essential cause of fertility control, the “moral constraint” recommended by Malthus was no longer a necessary condition. A macro-sociological analysis was thus substituted for that of micro-sociological dynamics, the latter based on the motor of individual responsibility and foresight. The theory of the standard of living made Malthus’ theory obsolete. Further, the standard of living argument allowed social change: following economic progress, “luxury goods” became “comforts” and even “necessities”, and their use spread in the different social classes, including the working classes, so that class differences became blurred and society became more homogeneous. Here, class ideology comes into play. The bourgeoisie boasted that they were the only class to maintain a satisfactory balance between fertility and the standard of living, while aristocratic families were disappearing as a result of excessive sterility, and the proletarians, on the contrary, were suffering from an equally excessive fertility as compared to their resources. But there is more to it than class ideology: the fact that the middle-classes were becoming more numerous, despite the low fertility of the bourgeois and the aristocrats, necessarily implied that more workers were becoming bourgeois. In other words, this upward social mobility was the result of access to well-being, as well as a result of the decline of fertility among the workers. Reducing their fertility was regarded (see, for instance, Courcelle-Seneuil, 1858; Leroy-Beaulieu, 1868, etc.) as the strongest and most indisputable indicator of the will of the reputedly revolutionary workers to merge with the middle-class population.

## The Roots of Current Population Policies

Let us return to the three disciplines that are at the root of the concept of population. To what extent do they also underpin current population policies? After Jeremy Bentham, moral philosophy had postulated the convergence of interests, asserting that society as a whole would be richer if all actors acted rationally (Bentham, 1907; first published in 1780). But for lack of having behaved rationally, in accordance with utilitarianism, for lack of having maximized their interest, the proletarians (let us translate: the “too fertile” Africans) were on the contrary punished, their standard of living dropped, and misery, if not death, awaited them at the end of the process. The intertwined relationship between political philosophy and political economy deserves to be underlined. The idea of social progress based on economic prosperity, an invention of the nineteenth century, made it possible to put the ideas of justice and equality in new terms. The link was easily made with liberal democracy: the guarantee of formal rights provided by the police state was sufficient, and progress was the result of the free play of economic forces.

John Stuart Mill added an important qualification in 1861: the utilitarian ideal was general happiness, not personal happiness. He believed that poverty could be entirely eliminated if the foresight of individuals was based on “the wisdom of society” (1962: 266; first published in 1861). Yet, “*The present wretched education, and present wretched social arrangements, are the only real hindrance to its being attainable by almost all*” (1962: 264). The whole question then was to ensure that the wisdom of society was translated into real social progress. J. S. Mill went on to argue that there were two opposing views on the question of pay for work: “*the more talented should be paid more*”; on the contrary, “*society should compensate the less fortunate because of this unjustified inequality of benefits rather than making it worse still*”. Thus, John Stuart Mill was well aware of the unequal bargaining power of the rich and the poor. He

even went so far as to assert that “*the rich would far better able to protect themselves, in the absence of law and government, than the poor, and indeed, would probably be successful in converting the poor into their slaves*” (Mill, 1962: 315). Reality thus risked invalidating the thesis of the convergence of interests. To avoid being caught in the contradiction, J. S. Mill proclaimed that the only way to escape it was to appeal to “social utility” (Mill, 1962: 314). In particular, the distribution of wealth could be regulated by the human will based on the search for justice. One can of course denounce the naivety of this optimism, which makes social utility the regulator of class conflicts. However, it paved the way for the reformist socialism advocated by the Fabian Society.

All in all, the relationship between ideas about population and political economy is more apparent, and also more elaborate, than that between population and political philosophy, because the conceptualization of demographic variables was contemporaneous with the affirmation of economic theory. This is what population policies based on the Western vision of utilitarian individual behavior are proposing today, and with the collapse of the Soviet bloc in 1989, only one model is now emerging—that of Western societies, with their supposed absence of class conflict and the omnipotence of the market, in increasingly deregulated economies.

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### **Conclusion: Thinking About Population Policies Yesterday and Today**

Within the limits of this chapter, it was impossible to fully develop a systematic comparison of past and current population policies. Instead, two final remarks can be made. First, while the statement that knowledge and science are often used to reinforce domination over people is by no means original, it must nevertheless be stressed that the quantitative dimension, which is inherent in thinking about population, has allowed a pseudo-objectification of the discourse. This was

true in the past, and it is true today as regards population policies. This temptation is so strong, and the ideological advantage it provides so obvious, that governments habitually resort to the argument of their scientific knowledge of the population and its evolution to justify their population policies. By framing the population as a disembodied being – the abstract sum of the individuals of the country – it was identified with the general interest, and the measures taken were justified in very significant terms: “the good of the people”, “the prosperity of the country” or “the happiness of the middle-classes”. Today we speak of the “integration of demographic variables in development planning”, “social development” and, more recently, “inclusive and sustainable development”.

Of course, the role of the state profoundly changed. The triumphant liberalism of the nineteenth century restricted it to a police state, which had to refrain from intervention in the social and economic fields, at the very least, and in particular from correcting inequalities. As we have seen, one of the legacies of the past centuries, consolidated yet further in the nineteenth century, was that the private sphere of the family was under the authority of the head of the family alone. It took, in France in particular, concern about the demographic context of persistent infant mortality and declining fertility to bring in laws to protect the survival of infants. In Northern Europe, from Denmark to Hitler’s Germany, the eugenicist policies of the hygienist movement seriously undermined the respect for human rights proclaimed by liberalism. But with this exception, all the incentives relating to demographic variables (marriage, the decision to procreate or not, and mobility), remained very limited. From this point of view, the contrast with present times is very profound. Current policies on the family, mobility, health, education, housing, and social protection systems reflect the socialisation of functions traditionally performed exclusively by the family. These socially- or economically-oriented policies that have been implemented in more developed countries have inspired policies implemented in a great many less developed countries.

Secondly, it is necessary to recall the often-underlined ambiguity of the very notion of “population policy”. Like any other sectoral policy, it refers both to measures relating to the demographic variables themselves (fertility, mortality, migration, etc.) designed and implemented in isolation, and to actions needed to achieve a social (improving the status of women) or economic (labor needs) objective. But, as we shall now see, a population policy can also be part of a much more global vision where it is harmonized with other policies. Nassau William Senior (1790–1864) concluded the two lessons he gave at Oxford in 1828 with a brilliant synthesis, proposing two alternative paths and demonstrating that the success of population policies depended on the convergence of contextual factors and a favorable institutional environment: *“I will only say at present that knowledge, security of property, freedom of internal and external exchange, and equal admissibility to rank and power, are the principal causes which at the same time promote the increase of subsistence, and by elevating the character of the people, lead them to keep at a slower rate the increase of their numbers. And that restrictions on exchange and commerce, artificial barriers excluding the great majority of the community from the chance of social eminence, and, above all, ignorance and insecurity of Person or property, are the general causes which both diminish the productiveness of labour, and tend to produce that brutish state of improvidence in which the power of increase, unchecked by prudence, is always struggling to pass the limits of subsistence, and is kept down only by vice and misery”* (Senior, 1831: 129).

Today, we would talk of the “comprehensive strategic vision” of a population policy for fertility control, articulating the micro and macro levels. But while development projects are essentially sectoral (health, education, agriculture, transport, etc.)<sup>2</sup> and designed with a strict development focus, Senior linked the success of fertility control to the overall functioning of society

and to the guarantees provided by political power in several areas: economic and commercial (free movement of products within countries and freedom of international trade); social (education and the possibility of social mobility); and political (security of persons and defence of freedoms). The most recent example is the current practice of the European Union, the World Bank, and other donors to impose conditionalities on their loans in terms of governance.

What Nassau William Senior conceptualized was not so much a logic of what we would call today a sectoral population policy, as a strategy *linking* population and development. Almost two centuries later in Niger, the Economic and Social Development Plan (PDES 2012–2015) was the sole framework of reference for the Government’s development agenda and its alignment with the Millennium Development Goals (MDGs), which covers the years 2000–2015 (République du Niger, 2012). The PDES proposed a forward-looking vision of national development based on the construction of an emerging country, built on a dynamic, diversified, sustainable, and harmoniously distributed economy for the national territory; a modern, democratic, civic-minded, and well-governed Republic; a country rich in culture and shared values; a society open to the world and committed to knowledge and technological innovation, prosperous, equitable, united, and at peace, committed to promoting African integration. Nothing less (Takoubakoye & Harouna, 2015: 35). The PDES was part of an overall objective concerned with promoting the economic, social, and cultural well-being of the population. It was structured around five complementary strategic axes: consolidation of the credibility and effectiveness of public institutions; creation of the conditions for balanced and inclusive development; food security and sustainable agricultural development; promotion of a competitive and diversified economy for accelerated and inclusive growth; and promotion of social development (Charbit, 2015).

Finally, how do current strategies differ from the one outlined by Senior? One major difference is the change in scale from national strategies designed and implemented autonomously, to

<sup>2</sup> Excluding, among others, the World Bank’s Multisectoral AIDS Projects (MAP) of the late 1990s.

post-colonial interactions between dominant and dominated countries. This is true of population policies, but also, and above all, in the economic field—as seen with the exploitation of mining and oil resources. While, under the pen of Senior, the development strategy proposed for England was spontaneously defined, from the 1950s onwards several less developed countries developed their own strategies, often under the impetus, or even pressure – benevolent or otherwise – of foreign powers and international donors. A decisive factor was the awareness of the strong demographic growth in Asia and Latin America, then, in the 1960s and 1970s, in Africa and the Middle East and the economic, social, and political implications of this demographic growth, especially until the fall of the Communist bloc. The constantly updated population projections, the results of which were widely disseminated, helped to force the governments of less developed countries to take into account the risks associated with this Malthusian vision of population growth. For example, in the introduction to the official document, *Vision 2030*, the Government of Chad writes: “We cannot fail to thank the Technical and Financial Partners (ADB, UNDP, UNFPA, UNICEF, EU, WFP, Banque Mondiale, France), whose technical and/or financial support has been decisive”. In the same document dated July 2017, the President of Chad stated: “The Government’s ambitions for 2030 [are consistent] with the African Union’s Agenda 2063 The Africa We Want and the Sustainable Development Goals (SDG 2016–2030) to which Chad has subscribed” (République du Tchad, 2017: 9). One could not find a clearer acknowledgement of the lack of autonomy of national politicians, and we can guess that behind the submission to the conditions stipulated by international donors, there must be deep resistance in African societies where fertility remains a central value. Indeed, Stycos (1971) had clearly shown that in Latin America right-wing nationalist governments were annoyed by the interventionism of the Big Brother Yankee, which was moreover of Protestant neo-Malthusian inspiration in the face of the natalist Catholicism of these regimes.

## References

- Baudrillart, M. H. (1872). *Manuel d'économie politique*. Guillaumin et Ce.
- Bentham, J. (1907 [1780]). *An introduction to the principles of morals and legislation*. Clarendon Press.
- Bodin, J. (1961 [1576]). *Les six Livres de la République*. Facsimile Scientia Aalen.
- Charbit, Y. (2009). *Economic, social and demographic thought in the XIX<sup>th</sup> century: The population debate from Malthus to Marx*. Springer.
- Charbit, Y. (2010). *The classical foundations of population thought: From Plato to Quesnay*. Springer.
- Charbit, Y. (2015). “Pauvreté et développement social.” In Institut national de la statistique du Niger. (Edit.). (2015). *Niger: vers le développement social* (pp. 11–34). L’Harmattan.
- Courcelle-Seneuil, J. G. (1858). *Traité théorique et pratique d'économie politique*. Guillaumin.
- Dameth, H. (1878). *Introduction à l'étude de l'économie politique* (2nd ed.). Guillaumin.
- Davis, K., & Blake, J. (1956). Social structure and fertility: An analytic framework. *Economic Development and Cultural Change*, 4(3), 211–235.
- Filmer, R. (1884 [1680]). *Patriarcha*. Routledge.
- Garnier, J. (1857). *Du principe de population*. Guillaumin.
- Godwin, W. (2013 [1793]). *An enquiry concerning political justice and its influence on general virtue and happiness*. Oxford University Press.
- Grotius, H. (1925 [1625]). *De jure belli ac pacis (on the law of war and peace)*. Bobbs-Merrill.
- Hajnal, J. (1953). Age at marriage and proportions marrying. *Population Studies*, 25(2), 193–214.
- Hajnal, J. (1965). European marriage patterns in historical perspective. In D. Glass & D. E. C. Eversley (Eds.), *Population in history* (pp. 101–143). Aldine.
- Hobbes, T. (1946 [1651]). *Leviathan or the matter, forme and power of a commonwealth, ecclesiastical and civil*. Basil Blackwell.
- Leroy-Beaulieu, P. (1868). *De l'état moral et intellectuel des populations ouvrières et de son influence sur le taux des salaires*. Librairie Guillaumin.
- Locke, J. (1984 [1690]). *Two treatises on civil government: Preceded by Sir Robert Filmer “Patriarcha”*. Routledge.
- Malthus, T. R. (1965 [1827]). *Essay on the principle of population*. 7th ed., of 1827. J. M. Dent & Sons.
- Malthus, T. R. (1970a [1798]). In M. C. Godwin (Ed.) and other writers, *An essay on the principle of population, as it affects the future improvement of society, with remarks on the speculations of MR*. Penguin Books.
- Malthus, T. R. (1970b [1830]). A summary view on the principle of population. In T. R. Malthus (Ed.) (1830), *An essay on the principle of population* (pp. 220–272). Penguin Books.
- Malthus, T. R. (1989 [1820]). In J. Pullen (Ed.), *Principles of political economy*. Cambridge University Press. (Fac simile of the 1820 Edit.)

- Mill, J. S. (1962 [1861]). *Utilitarianism*. Collins.
- Mill, J. S. (1970 [1848]). *Principles of political economy*. Penguin Books.
- Rabier, S. (2016). *L'ambition suédoise pour le développement: Genre, santé et droits sexuels et reproductifs*. L'Harmattan.
- République du Niger. (2012). *Plan de Développement Économique et Social (PDES) 2012–2015*. Ministère du Plan, de l'Aménagement du Territoire et du Développement Communautaire.
- République du Tchad. (2017). *Vision 2030, le Tchad que nous voulons*. Présidence de la République, Primature, Ministère de l'Économie et de la Planification du Développement.
- Ricardo, D. (1965 [1817]). *The principles of political economy and taxation*. J. M. Dent & Sons.
- Senior, N. W. (1831). *Two lectures on population: Delivered before the University of Oxford in Easter term 1828*. Murray.
- Smith, A. (1970 [1776]). *The wealth of nations*. Penguin Books.
- Spinoza, B. (1997 [1670]). *Traité théologico-politique*. Garnier-Flammarion.
- Stycos, J. M. (1971). *Ideology, faith and family planning in Latin America. Studies in public and private opinion of fertility control*. McGraw-Hill.
- Takoubakoye, A., & Harouna, S. (2015). "La réponse institutionnelle aux enjeux du développement social." In Institut national de la statistique du Niger. (Edit.). (2015). In *Niger: vers le développement social* (pp. 35–53). L'Harmattan.
- Pufendorf, S. von. (1740 [1672]). *Le droit de la nature et des gens, ou Système général des Principes les plus importants de la morale, de la jurisprudence, et de la politique*. Chez Jean Nours.
- Webb, S. & Webb, B. (1963 [1927–1929]). *English poor law history*. Frank Cass.





# Population, Burden of Disease, and Health Services

# 4

Vincent Turbat, Rebecca Gribble, and Wu Zeng

## Introduction

In this chapter, we adopt a prospective view to explore the linkages between demographic trends, the burden of disease, and health services provision. The world has experienced unprecedented demographic changes since the early twentieth century: the human population increased from 2 to 7.8 billion; a demographic transition (a shift from high to low crude death rates and crude birth rates) was achieved in a majority of countries and significantly changed the population age structure; and local and international migration increased dramatically, from rural to urban areas, between the less developed countries in the Global South, and from the less developed to the more developed countries. These changes relate to new and varied patterns of mortality and fertility rates and socioeconomic outcomes. Among the various population trends which were induced by these changes, this chapter focuses on three key issues: aging, urbanization, and displaced population/refugees. These trends are likely to drastically modify the burden of disease and therefore health services requirements during the remainder of the twenty-first century.

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In the first section, we describe global population trends to identify and analyze their implications for health. The importance of assessing population dynamics for the future of health systems cannot be stressed enough. First, population dynamics may induce significant changes in epidemiological patterns as seen alongside the epidemiological transition (i.e., the transition from a disease pattern dominated by communicable diseases to a disease pattern dominated by non-communicable diseases). Second, population dynamics may be indicative of certain health-related issues (such as the difficulties of controlling communicable diseases and preventing and treating non-communicable diseases in certain demographic groups). Third, population dynamics might provide an opportunity to overcome health issues (for instance, the increase in health financing associated with an improved dependency ratio resulting in a demographic dividend<sup>1</sup>).

In the second section, we look at key changes in the global burden of disease as induced by population dynamics. Population aging is the most significant variable of change, urbanization has an association with the burden of non-communicable diseases (NCDs), while international migration, especially the dramatic increase in the number of refugees living in

<sup>1</sup> The demographic dividend is defined as a rapid economic growth, of about 7% per year, that results from a rapid demographic transition (Turbat, 2017).

camp, increases the burden of both communicable and non-communicable diseases, child and maternal health, and mental health.

Finally, in the third section, we assess the effective coverage of health services, with a focus on old-age, young, urban, and migrant populations. Are health systems adapting sufficiently to the changing burden of disease triggered by population dynamics? And what will be the main health system reforms that will need to be undertaken during the remainder of the twenty-first century to meet growing health challenges?

## Demographic Patterns and Trends

The first factor that will impact the global burden of disease and healthcare delivery systems is the evolution of the population (see Table 4.1), which we can track through the annual population growth rate. According to the UN Population Division, the world average annual rate of population growth increased until 1965–1970 when it reached its peak at 2.05% (United Nations, 2019). From then, it started to decrease and reached 1.09% in 2015–2020. In the future, it is projected to steadily decrease from 0.98% in 2020–2025 to 0.04% in 2095–2100 (0.45% in 2050–2055 and 0.18% in 2075–2080).

However, this evolution has been and will be different in the future between the more and the less developed regions. For the former, the rate of change decreased from 1.18% per year in 1950–1955 to 0.26% in 2015–2020, and will continue to decrease from 0.13% in 2020–2025 to –0.11% in 2055–2060. It will then increase again from –0.11% in 2060–2065 to 0.01% in 2095–2100. For the latter, the rate of change increased from 2.06% in 1950–1955 to 2.52% in

1965–1970, then decreased to 1.26% in 2015–2020, and will continue to steadily decrease from 1.14% in 2020–2025 to 0.05% in 2095–2100 (0.53% in 2050–2055 and 0.27% in 2070–2075).

This means that the more developed regions are going to experience a decrease in their population (migration excluded) as soon as 2035–2040, while the less developed regions will continue to experience an increase in their population, albeit at a reduced rate. This situation might induce an increase in the already high migration flows from the less developed to the more developed regions.

The second indicator that will impact the global burden of disease and healthcare delivery systems is the evolution of a population by age groups. Globally: (i) the share of the under 5 years (U5) increased from 13.3% (of total population) in 1950 to 14.4% in 1965 and then decreased to 8.7% in 2020. The U5 will see their share decrease further to 5.7% in 2100 (7.1% in 2050 and 6.3% in 2075); (ii) the under 20 years (U20) share increased from 43.7% in 1950 to 47.6% in 1970, before decreasing to 33.3% in 2020. The U20 will also see their share decrease to 23.4% in 2100 (28.0% in 2050 and 25.5% in 2075); and (iii) the 65 and over share increased from 5.1% in 1950 to 9.3% in 2020. The share of the age group 65 and over (see Table 4.2) will continue to increase to 22.6% in 2100 (15.9% in 2050 and 19.5% in 2075). Population aging that started after World War II is currently at its highest level in human history. Except for just 18 countries, the “demographic outliers”, all countries are experiencing a rise in the aged share of their population. This is a direct effect from the demographic transition that started in European countries about 200 years ago, which is characterized by a decline in crude death and

**Table 4.1** Population (in millions)

Population	1950	1975	2000	2025	2050	2075	2100
World	2536	4079	6143	8184	9735	10,577	10,875
More developed regions	815	1048	1188	1282	1280	1249	1244
Less developed regions	1722	3031	4955	6903	8455	9328	9631

Source: United Nations (2019)

**Table 4.2** Old population (in %)

Pop 65+	1950	1975	2000	2025	2050	2075	2100
World	5.1	5.6	6.9	10.4	15.9	19.5	22.6
More developed regions	7.7	10.8	14.3	21.1	26.9	28.5	29.8
Less developed regions	3.8	3.8	5.1	8.4	14.2	18.3	21.7

Source: United Nations (2019)

**Table 4.3** Population U20 (in %)

U20	1950	1975	2000	2025	2050	2075	2100
World	43.7	46.7	39.4	32.4	28.0	25.5	23.4
More developed regions	35.8	32.7	32.1	21.5	20.1	19.9	19.8
Less developed regions	47.5	51.5	42.8	34.4	29.2	26.2	23.9

Source: United Nations (2019)

birth rates along with a rising life expectancy at birth.

Within population age groups, we see a significant divergence between the more and the less developed regions, which is very similar to the divergence observed for the growth rate of the overall population. In the more developed regions, the very young population (U5) experienced a decline of its share from 10.2% in 1950 to 5.3% in 2020. This decline will continue, but much more slightly and slowly, and reach 4.8% in 2100. The young population (U20) share started to decline in 1950 until 2020, from 35.8 to 21.8%. This decline will continue during the remainder of the twenty-first century and reach 19.8% in 2100. The 65 and over population share grew from 7.7% in 1950 to 19.3% in 2020. For the remainder of the century, the 65 and over population will continue to increase steadily and significantly, reaching 29.8% in 2100.

In the less developed regions, the U5 population share increased from 14.8% in 1950 to 16.7% in 1955, then decreased to 9.4% in 2020. It is expected to consistently decrease significantly to 5.8% in 2100. The U20 population share increased from 47.5% in 1950 to 52.4% in 1970, before declining to 35.6% in 2020. It is expected to decrease further to 23.9% in 2100. With regard to the share of the population 65 and over, it reached its lowest level (3.4%) in 1965 and then started to increase to 7.4% in 2020. During the period 2020-2100, there will be a significant and steady increase with the share of the 65 and over reaching 21.7% in 2100.

At the world level, the young age group evolution (see Table 4.3) will translate into an improved child dependency ratio (U20/20–64) for the period 2020 to 2100 (from 58.1 in 2020 to 43.4 in 2100). However, because of the consistent and sharp increase in the older population for the remainder of the twenty-first century, the older population dependency ratio (65+/20–64) will significantly deteriorate (from 16.3 in 2020 to 41.8 in 2100) and more than negate the improved child dependency ratio. It is therefore expected that the total dependency ratio (calculated as the ratio of dependents – the U20 and 65 and over population – to the working age population, or 20–64) will significantly deteriorate in the upcoming years. According to the UN Population Division, this shift has taken place in 2015 and it is estimated that the total dependency ratio will then rise from 74.1 in 2015 to 85.2 in 2100 globally.

This means that almost all countries in the world will have to find ways to prevent this rising dependency burden from excessively hampering their economic growth. On the positive side, it should be noted that the old age dependency ratio rise does not have the same negative impact on economic growth as the young age dependency ratio rise, because the old age population does not capture as many resources as the young age population: old people still contribute to the economy, mainly through taxes and savings, whereas the young age population does not. However, it is also evident that population aging will trigger a shift in epidemiological patterns and in health

**Table 4.4** Net migration rate (per 1000)

NMR	1950–1955	1975–1980	2000–2005	2025–2030	2050–2055	2075–2080	2095–2100
More developed regions	0.0	1.2	2.7	1.7	1.8	1.9	1.9
Less developed regions	−0.0	−0.4	−0.6	−0.3	−0.3	−0.2	−0.2

Source: United Nations (2019)

services structure (to meet the needs of a growing old population). This shift will be costly as the old age population requires more health services (quantity effect), which on average are more costly (price effect). If one considers that spending on health for: (i) the young age population is an investment; (ii) the working age population is an intermediate consumption (maintenance of the workforce); and (iii) the old age population is a final consumption (not generating any further economic growth), it is clear that population aging should result in a gradual burden for the economy and might impact the growth rate of a majority of economies during the remainder of the twenty-first century.

One should also note that, as a result of a slow demographic transition,<sup>2</sup> some of the less developed countries (especially in sub-Saharan Africa) are still experiencing a deterioration of their young age dependency ratio while starting to experience a growing burden of their old population (May & Guengant, 2020). In the case of Niger, the Under 20 years (U20) dependency ratio<sup>3</sup> went from 155.0 in 1950 to 164.4 in 2020, and should reach 57.9 in 2100, while the 65 and over dependency ratio went from 1.9 in 1950 to 5.4 in 2020, and should reach 15.0 in 2100.

<sup>2</sup> A slow demographic transition combines: (i) a longer than usual time span between the start of the decrease in death rates and the decrease in birth rates; and (ii) a slower rate of decrease of birth rates. As a result, life expectancy at birth is rising fast, while the youth share of the total population continues to grow, and the dependency burden increases on both ends (May & Turbat, 2017).

<sup>3</sup> The use of a U20 dependency ratio is more representative than the more common but also outdated U15 ratio as increasing numbers of young people remain dependents until they reach 20 years of age.

Countries where the old age population burden will rapidly replace that of the young age population will most likely be unable to attain a pace and level of improvement of their dependency ratio that would: (i) yield a substantial demographic dividend (Turbat, 2017); and (ii) create the fiscal space to pay for the higher health costs generated by the increase in the old-age population. This means that these countries will need to find new ways of financing the health services of their increasing proportion of old-age dependents. Looking at Morocco, we see that the total dependency ratio [using United Nations Ratio 2 (0–19 + 65+ / 20–64)] will already reach their lowest point of 72 in 2040 and rise again to reach 99.1 in 2100. As for Kenya, they will reach their lowest point of 71 in 2065. For comparison, South Korea, one of the four tiger countries, reached a low of 49.2 in 2015 due to a short period of demographic transition and high rates of birth and mortality decline. This is a difference of about 20 points of percentage, which is significant in terms of dependency burden for an economy.

International migration flows suggest that the less developed regions are going to lose part of their population on an average rate of minus 30 per 100,000 habitants a year between 2020 and 2100, while the more developed regions will receive an average of 190 migrants per 100,000 habitants a year during the same period (see Table 4.4). Almost two-thirds of the world's migrants reside in the more developed countries, where they often fill key occupational shortages. From 2000 to 2014, immigrants contributed 40–80% of the labor force growth in major destination countries. Moving more labor to higher-productivity settings boosts the global GDP of the host countries, and while remittances are sent back to migrant's origin countries, there are still

detrimental effects on the economy of migrants' origin countries (for example the brain-drain effect, cost of training skilled migrants, loss of national-level income taxation). This decrease in the full benefit of "providers" for the increasing number of dependents may well accentuate the severity of the issue of financing health services as described above.

The political/humanitarian dimensions of migration are becoming increasingly important and translate into refugee crises in recipient countries such as Bangladesh or Jordan. The health system of countries receiving a large number of refugees is and will be deeply impacted by a sizable addition to the already growing number of patients (mainly as a result of aging). Even if the epidemiological profile of refugees is not significantly different from the profile of the host population, health systems will still feel the impact.

Global urbanization, which started in more developed regions in the late 1800s, is going to continue, especially in the less developed countries (see Table 4.5). Worldwide, the percentage of the population living in urban areas will reach 68.4% in 2050, up from 56.2% in 2020 (however, definitions of urban areas vary greatly between countries). In the more developed regions, this percentage is expected to reach 86.6% in 2050 (up from 79.1% in 2020) while, in the less developed regions, it will reach 65.6% in 2050 (up from 51.7% in 2020). For health systems, this presents a double problem: i) urban health services need to be scaled up to meet the needs of a growing urban population, where the urban environment affects disease profiles; and ii) rural health services need to adapt, in order to maintain access to quality health services.

Population aging, migration (both among the less developed countries and from the less

developed to the more developed regions), and urbanization are three major factors that are going to impact the global burden of disease and the health services required during the remainder of the twenty-first century. Additionally, socioeconomic status, disability, and, to a lesser extent, sexual orientation and religious affiliation, might have an impact on both the burden of disease profiles and the structure of countries' health systems.

## Demographic Patterns and the Burden of Disease

### Aging and the Burden of Disease

Due to improvements in living conditions and the continuous development of medical technology, the human lifespan has increased dramatically over the last century (Campisi et al., 2019). Although aging brings an irreversible progressive decline of physiological function, the onset and severity of age-related diseases, such as cardiovascular diseases, musculoskeletal disorders and arthritis, neurodegenerative diseases, and cancer were significantly delayed and reduced in the last several decades.

Both more and less developed regions are experiencing a fast pace of aging within their population (see Table 4.2). This translates to an increase in diseases associated with old age. The longstanding question whether old age itself is a disease has been examined since ancient times. With the development of modern medicine, aging and diseases were considered as separate phenomena that could eventually interact but are essentially different in nature. However, today, the hypothesis is that aging and chronic age-related diseases (ARDs) and geriatric

**Table 4.5** Urban population (in %)

Urban population	1950	1975	2000	2025	2050
World	29.6	37.7	46.7	58.3	68.4
More developed regions	54.8	68.8	74.2	80.2	86.6
Less developed regions	17.7	26.9	40.1	54.3	65.6

Source: United Nations (2019)

syndromes (GSs) share the same basic molecular and cellular mechanisms, and therefore should be considered as a continuum. This hypothesis is receiving increased attention (Franceschi et al., 2018).

Geroscience, the new interdisciplinary field that aims to understand the relationship between aging and ARDs and GSs, is based on epidemiological evidence and experimental data showing that aging is the major risk factor for such pathologies. Geroscience assumes that aging and ARDs/GSs share a common set of basic biological mechanisms. The incidence of these diseases increases exponentially with age and thus their share in the global burden of disease for a large number of countries also increases.

To assess the burden of disease, several indicators can be used. The traditional indicators are those of morbidity and mortality. They provide good insights on the prevalence and incidence of a disease as well as the number of deaths caused by a disease. However, indicators which combine morbidity and mortality for a disease are now more commonly used. This includes disability-adjusted life years (DALYs), where one DALY represents the loss of 1 year of full health (World Health Organization, 2021). DALYs are calculated by combining the sum of years of life lost due to premature mortality (YLL) and years lived with disability (YLD) for a specific disease or health condition in a population. The Global Burden of Disease is defined as the sum of DALYs lost during a calendar year. It can be calculated for the world, a region, or at the national level, for all or for selected diseases.

In this section, we analyze the evolution of a basket of diseases that have consistently been identified as ARDs and GSs to assess the impact of aging on the global burden of disease. This list is not exhaustive since data for some ARDs/GSs is not currently available. However, this basket is quite representative of the diseases linked to old age.

As seen in Table 4.6, all ARDs and GSs increased their share in the number of deaths and DALYs from 1990 to 2019, except for stomach cancers (deaths). Together, the above listed ARDs and GSs increased their share in total

deaths from 50.41% in 1990 to 65.77% in 2019, and their share in total DALYs from 21.80% in 1990 to 32.95% in 2019. This is an increase of 30.47% for the share of deaths and 51.25% for the share of DALYs in a 30-year period.

Looking toward 2100, we can expect an annual growth in the share of ARDs and GSs higher to what was observed for the period of 1990–2019. First, the 65+ population share is estimated to grow at an annual average rate of 1.4% between 2025 and 2100 (it was 1.39% between 1950 and 2025; see Table 4.2). Second, the population of 80+ is also going to increase faster: 0.03% annual average between 1950 and 2020; and 0.04% between 2020 and 2100. This means that ARDs and GSs could represent more than 85% of all deaths and 50% of all DALYs globally in 2100.

According to these first results, healthcare delivery systems would have to be significantly restructured toward geriatric health services all over the world. Geriatric health services may currently represent between one-third and half of all health services.

## Urbanization and the Burden of Disease

As described in the previous section, the world is becoming increasingly urbanized. Both more developed and less developed regions have seen growth in their proportion urban since the 1950s. While the more developed regions have a higher number of people living in urban areas, the less developed regions have seen a much higher annual growth rate of their urban population from 1950, which is projected to continue through to 2050 (United Nations, 2018). Therefore, global urbanization is currently being driven by the less developed regions, while the more developed regions have a longer history of larger urban populations.

Urban areas are well established in the health literature as “complex and dynamic spaces”, with city features being placed within multi-level (social ecological) frameworks for health, representing the diverse influences cities have on population and individual health (Ettman et al.,

**Table 4.6** Global deaths and DALYs (in %)

Disease	1990	2000	2010	2019
Cardiovascular deaths %	25.88	27.54	30.06	32.84
Cardiovascular DALYs %	10.80	12.00	13.58	15.52
Stroke deaths %	9.81	10.66	11.08	11.59
Stroke DALYs %	4.18	4.69	5.08	5.65
Diabetes deaths %	1.30	1.66	2.08	2.61
Diabetes DALYs %	0.98	1.32	1.89	2.61
Bladder cancer deaths %	0.26	0.29	0.35	0.40
Bladder cancer DALYs %	0.10	0.12	0.14	0.17
Non-Hodgkin lymphoma deaths %	0.27	0.32	0.39	0.45
Non-Hodgkin lymphoma DALYs %	0.16	0.19	0.23	0.28
Tracheal, bronchus, and lung cancer deaths %	2.28	2.61	3.17	3.61
Tracheal, bronchus, and lung cancer DALYs %	1.05	1.22	1.51	1.81
Breast cancer deaths %	0.82	0.93	1.07	1.24
Breast cancer DALYs %	0.45	0.55	0.66	0.81
Colon and Rectum cancer deaths %	1.11	1.31	1.03	1.92
Colon and Rectum cancer DALYs %	0.48	0.59	0.77	0.96
Malignant skin melanoma deaths %	0.07	0.08	0.10	0.11
Malignant skin melanoma DALYs %	0.04	0.05	0.06	0.07
Stomach cancer deaths %	1.69	1.67	1.75	1.69
Stomach cancer DALYs %	0.79	0.81	0.87	0.88
Alzheimer deaths %	1.20	1.55	2.19	2.87
Alzheimer DALYs %	0.37	0.49	0.72	1.00
Parkinson deaths %	0.32	0.39	0.52	0.64
Parkinson DALYs %	0.11	0.14	0.19	0.25
Chronic obstructive pulmonary disease (COPD) deaths %	5.40	5.60	5.47	5.80
COPD DALYs %	2.29	2.48	2.59	2.94

Source: Institute of Health Metrics and Evaluation (2019)

2019; Tozan & Ompad, 2015). Complexity in cities includes a broad range of interrelated health determinants, such as housing, the built environment, and economic opportunity, as well as demographic influences such as migration and aging. Given this large range of factors, approaches from multiple sectors alongside health services are required to work toward improving urban health outcomes (Gatzweiler et al., 2018).

While urban health is a well-established field of study, exploring the way cities affect the health of their residents is more complex: there is not a single pattern of disease which is applicable to all urban areas at the global level (Flies et al., 2019).<sup>4</sup>

<sup>4</sup> See also Chap. 18: *Population and Health Policies in Urban Areas* of this *Handbook* (Vučković & Adams, this volume).

For example, associations have been found between residing in urban areas and non-communicable diseases, with these associations varying in degree and direction as well as per disease, location, and rate of urbanization studied (Allender et al., 2011; Eckert & Kohler, 2014; Sobngwi et al., 2004). The difficulty in generalizing findings at the global level stems from the heterogeneity both within and between cities. Residents of an affluent neighborhood may have very different socioeconomic health determinants, environmental exposure to disease, and access to care than those residing in a slum neighborhood in the same city, or those residing in an urban area in another country. This demonstrates how complex urban environments are by themselves, and in relation to one another.

Kenya, Indonesia, and the United States of America are three countries with varying levels

and rates of urbanization, as seen in Table 4.7. To explore possible associations between urban populations and burdens of disease, we compared the most densely populated or most urban province/district with the least densely populated or least urban province/state for each country. This provided a comparison between capital areas (Nairobi, Jakarta, and Washington, DC) and rural areas (Marsabit, East Nusa Tenggara, and Wyoming) over 30 years. The diseases which accounted for the largest proportion of the burden of disease (DALYs) in urban areas in 2019 for each country were used as reference points. Comparison between 1990 and 2019, for selected diseases, is presented in Table 4.8 (see Appendix for full data).

All three countries experienced a significant decrease in neonatal disorders in their most

urban areas over the past 30 years. Indonesia and the U.S. also saw a significant decrease in their most rural areas, although this was not to the same degree as in the urban areas, and Kenya saw an increase in neonatal disorder DALYs in the most rural area. This data may indicate an improvement in neonatal disorders through living in urban areas, i.e., the ‘urban advantage’.

However, when looking at neonatal mortality in Kenya, Nairobi performed worse than the national average, the urban average, and the rural average. This has been suggested to represent the poorer health outcomes of residents living in slum areas (over 60% of the city’s population live in informal settlements), contrasting the urban advantage with an ‘urban penalty’ (Ezeh & Mberu, 2019). In the U.S., while the most urban area showed a greater

**Table 4.7** Urban population and rates of change for Kenya, Indonesia, and the United States of America 1950–2050

Urban population (%)					
	1950	1975	2000	2025	2050
Kenya	5.6	12.9	19.9	30.6	46.3
Indonesia	12.4	19.3	42.0	59.8	72.8
United States of America	64.2	73.7	79.1	83.7	89.2
Average annual rate of change of the percentage urban (%)					
	1950–55	1970–75	1995–2000	2020–2025	2045–2050
Kenya	2.8	4.5	1.7	1.7	1.5
Indonesia	1.6	2.5	3.1	1.2	0.6
United States of America	0.9	0.01	0.5	0.2	0.2

Source: United Nations (2018)

**Table 4.8** Burden of disease in the most urban province/district and the most rural province/state for Kenya, Indonesia, and the U.S., 2009–2019

	1990 (% of all DALYs)		2019 (% of all DALYs)		Change (1990–2019, %)	
	Urban	Rural	Urban	Rural	Urban	Rural
<i>Neonatal disorders</i>						
<b>Kenya</b>	10.6%	19.9%	8.6%	20.8%	–18.9%	4.9%
<b>Indonesia</b>	12.1%	11.0%	4.8%	7.7%	–60.0%	–31.4%
<b>U.S.</b>	5.3%	2.2%	2.4%	1.4%	–55.8%	–37.6%
<i>Diabetes</i>						
<b>Kenya</b>	0.6%	0.4%	2.2%	0.8%	267.1%	82.8%
<b>Indonesia</b>	1.7%	1.3%	5.8%	4.3%	231.5%	234.5%
<b>U.S.</b>	2.4%	2.3%	3.4%	3.4%	41.8%	49.1%

Source: Institute of Health Metrics and Evaluation (2019)

Note: In Kenya, the urban (highest density) province is Nairobi, the rural (lowest density) province is Marsabit (Humanitarian Data Exchange, 2019a). In Indonesia, the most urban province is Jakarta, the least urban province is East Nusa Tenggara (Humanitarian Data Exchange, 2019b). In the U.S., the urban (highest population density) area is the District of Columbia (DC), the rural (lowest population density) state is Wyoming (U. S. Census Bureau, 2021)



improvement over this period for neonatal disorders, there was a consistently higher level of DALYs for neonatal disorders than in the most rural area. This may suggest that health gains are not shared evenly among all populations living within the city; specific neighborhoods or populations experience an urban advantage whilst others experience an urban penalty.

Similarly, all three countries experienced a significant increase in diabetes in their most urban areas. However, Indonesia and the U.S. saw an even higher increase in diabetes in their rural areas. Studies have shown that the relationship between urbanization and diabetes is not linear, with diabetes found to be associated with urban areas in less developed nations and with rural areas in more developed nations (in a transitory manner) (Flies et al., 2019). The data in Table 4.8 supports this through a greater prevalence of diabetes in Kenya's urban area, moving to a higher growth rate in Indonesia's rural area, and finally a higher prevalence in the rural area of the U.S. Diabetes has also been linked to the rate of growth of urban areas, in particular uncontrolled rapid growth of densely populated urban areas, at the global level (Gassasse et al., 2017). Indonesia had the highest rate of urbanization during 1995–2000, which may be reflected in the highest level (percent of DALYs) of diabetes in these three countries. With the majority of Nairobi's population living in informal settlements, and Kenya predicted to maintain a higher rate of urbanization until 2050, this will be an area to monitor both burden of disease and health services provision for diabetes.

As urban burdens of disease are not homogeneous, both differentialized and localized health responses will be required to address complex burdens of disease within cities in response to urbanization.

### **International Migration and the Burden of Disease**

Following a study that showed no systematic association between migration and communicable diseases, the World Health Organization

(WHO) concluded: “*The health problems of refugees and migrants are similar to those of the rest of the population, although some groups may have a higher prevalence*” (World Health Organization, Regional Office for Europe, 2021).

However, migrants and refugees are exposed to the risks associated with population movement such as: accidental injuries, hypothermia, burns, gastrointestinal illnesses, cardiovascular events, pregnancy- and delivery-related complications (leading to higher newborn mortality), diabetes, hypertension, psychosocial disorders, drug abuse, nutrition disorders, alcoholism, and exposure to violence, and therefore are likely to have higher incidence of these NCDs than the local population.

At the end of 2019, there were an estimated 79.5 million forcibly displaced people worldwide, refugees included (The UN Refugee Agency, 2020). More than two-thirds of all refugees came from Syria, Venezuela, Afghanistan, South Sudan, and Myanmar. Syrian refugees alone account for more than 10% of the population in Jordan; many of them live with the Jordanian population while some are living in congregated camps. Bangladesh houses about one million Rohingya refugees, and a majority of them live in the camps in Cox's Bazar. This population group has unique health needs and their living status affects the national profile of diseases, and thus the burden of disease.

The health needs for refugees vary substantially, depending on factors such as country of origin, their experiences, duration of their time living in host communities, and living conditions within host communities. A systematic review of health needs among Syrian refugees in Lebanon, Jordan, Turkey, and Iraq found that the most common health problems were NCDs in Jordan, women's health in Lebanon, and mental health in Turkey (El Arnaout et al., 2019). In Jordan, the key identified NCDs among the Syrian refugees were hypertension, cardiovascular disease, asthma, arthritis, and diabetes, similar to the Jordanian population. Refugees with NCDs often encounter an interruption in care due to a lack of access to healthcare systems and providers or displacement-associated interruption of

treatment, which increases the burden of disease within this population (World Health Organization, Regional Office for Europe, 2021).

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## Health Services

As it has been established in the previous sections of this chapter, demographic and epidemiological transitions are intrinsically tied. Population dynamics can result in varying burdens of disease due to circumstances which primarily affect one specific population group compared to another. This includes demographic characteristics such as migration, urbanization, and aging, which then have some effect on the national burden of disease.

If a country has a higher population of people aged 65 and over, there is an expectation that there will be a larger burden of non-communicable diseases, particularly those associated with aging, than in a country with a younger population. A country with a high fertility rate and a young population, however, will expect to see a greater burden of disease from maternal and childhood illness. Health systems in these respective countries need to respond to the population-derived burden of disease through relevant and effective health services delivery in order to work toward Universal Health Coverage (UHC) and achieving the Sustainable Development Goals (SDG) (World Health Organization, 2019).

Achieving UHC will require that all people receive the health services they need (World Health Organization, 2019). When considering this through a demographic lens, population dynamics are essential to consider current and future health needs. The World Health Organization (WHO) uses the Universal Health Coverage Service Coverage Index (UHC SCI) to monitor progress made toward achieving UHC. This Index comprises fourteen tracer indicators which represent health service capacity across the lifespan to demonstrate how health service coverage is performing (World Health Organization, 2019). Since 2000, improvements in the WHO UHC SCI have been seen across all WHO regions and World Bank income groups (World

Health Organization, 2019). The greatest improvements in service coverage were seen in the Western Pacific and African regions as well as in low-income countries (World Health Organization, 2019). This is encouraging as these regions and income groups are home to countries with large demographic changes. Globally, the infectious disease indicators within the UHC SCI have improved the most since 2000 (World Health Organization, 2019).

Measuring in detail the effective coverage of health services at the health system level is essential in determining whether health services are aligned with the national burden of disease and population profiles (GBD 2019 Universal Health Coverage Collaborators, 2020). Health services must match population health needs in order to result in health gains. The Universal Health Coverage Effective Coverage Index (UHC ECI) consists of 23 indicators representing health services across five population age groups to measure effective coverage – namely that people receive high quality health services based on their need – at the national level (GBD 2019 Universal Health Coverage Collaborators, 2020). Globally, there has been an increase in the UHC ECI from 1990 to 2019 with sub-Saharan Africa, an area experiencing major demographic changes, showing the fastest rate of improvement since 2010 (GBD 2019 Universal Health Coverage Collaborators, 2020). Many health systems, however, showed slower improvements in effective coverage for non-communicable diseases than for communicable diseases and maternal and child health, despite a rising non-communicable burden of disease (GBD 2019 Universal Health Coverage Collaborators, 2020). Globally, therefore, many health systems are slow to respond to the health needs of their aging populations.

The following sections examine some recent population changes and health system responses in more detail, using example populations.

## Aging Populations

An increase in older populations has been shown to be associated with a change in the burden of

disease, particularly in non-communicable diseases such as cardiovascular disease and stroke. However, a major consideration in the healthcare needs of older populations is not only that more care is required but that care is required for a longer period of time; in addition, healthcare may need to be delivered at home or in long-term care institutions rather than in hospitals, doctor’s offices or clinics.

Two countries that have large older populations are Canada and Japan. Specific age-related disease indicators from the UHC ECI can be compared to the aggregate of all index indicators (which represent coverage across the lifespan) as a proxy for how effective health services delivery is for older populations. As seen in Table 4.9, the level of health services coverage is the same in older adults as for the overall population in Canada (GBD 2019 Universal Health Coverage Collaborators, 2020). This is a positive indication that Canada is meeting the health needs of its older population through relevant, effective health services delivery. Although older adults receive the same level of services as the overall population, there is still an opportunity to improve health services for the older population, given that this is a growing population with high healthcare needs. Another way to represent sufficient access to quality healthcare is to look at amenable mortality (mortality from causes that should not be fatal if effective, quality medical

care is provided). In Table 4.9, when looking at amenable mortality including older adults, Canada sees a small drop from the overall population (GBD 2015 Healthcare Access and Quality Collaborators, 2017). A low amenable mortality for ischemic heart disease explains some of this difference (GBD 2015 Healthcare Access and Quality Collaborators, 2017). Older populations in Canada fare slightly worse than the wider population in age-standardized amenable mortality for relevant diseases, which may represent a slight shortfall in appropriate health services for the older population.

While health services delivery and mortality indicators are important in assessing how well a country is managing specific population health needs, it is also important to consider national health strategic priorities and funding. As countries experience demographic changes, health system priorities must adapt in order to continue to meet changing population health needs and thereby ensure allocative effectiveness (i.e., the optimal distribution of services) within health systems. If health systems do not adapt to the changing population-derived burden of disease, health priorities may be misaligned with population needs. This could lead to an increase in morbidity and mortality from diseases that go un- or under-treated. An allocative inefficiency within the health system may also occur, with resources, funding, and infrastructure directed

**Table 4.9** Effective coverage of health services and amenable mortality index scores from the Global Burden of Disease for Canada and Japan, overall and older adult populations

	Effective coverage of health services index		Amenable mortality index	
	Overall population	Older adult population	Overall population	Population including older adults
Canada	90	90	88	85
Japan	96	95	89	88

Sources: GBD 2019 Universal Health Coverage Collaborators (2020) and GBD 2015 Healthcare Access and Quality Collaborators (2017)

Index scores are out of 100

Effective coverage of health services index indicators for older adults aged 65 and over encompass the following treatments: antiretroviral treatment, tuberculosis, diabetes, ischemic heart disease, stroke, chronic kidney disease, cervical cancer, breast cancer, uterine cancer, colon and rectal cancer, COPD treatment, epilepsy, appendicitis, and paralytic ileus and intestinal obstruction

Amenable mortality index indicators for adults aged up to 74 are tuberculosis, lower respiratory infections, upper respiratory infections, diphtheria, tetanus, maternal disorders, neonatal disorders, non-melanoma skin cancer, cervical cancer, testicular cancer, Hodgkin’s lymphoma, rheumatic heart disease, ischemic heart disease, cerebrovascular disease, hypertensive heart disease, peptic ulcer disease, appendicitis, inguinal, femoral, and abdominal hernia, gallbladder and biliary diseases, epilepsy, chronic kidney disease, congenital health anomalies, and adverse effects of medical treatment

toward diseases that no longer impose a high burden. Health systems adapting to population health needs are essential in maintaining the global reduction in mortality and morbidity.

From 2016 to 2018, Canada spent 17.9% of its health expenditure on long-term care (World Health Organization, 2020). This is a significant proportion of overall health expenditures (considering curative care accounted for 47.5% of current health expenditure during the same timeframe) (World Health Organization, 2020). Older adults, adults, and children can receive long-term care, depending on their level of dependence. However, older adults with a physical or mental impairment, as well as dementia and Alzheimer's disease patients, are among the main population groups receiving long-term care (Organisation for Economic Cooperation and Development, 2018). With a significant percentage of health expenditure going toward long-term care in Canada, this can also be a positive indicator of striving to meet the older population's health needs through effective funding allocation.

Similarly, Japan spent 18.5% of its health expenditure on long-term care in 2016–2017, with 55.2% of all health expenditure for the same period going toward curative care (World Health Organization, 2020). While Canada has a publicly-funded national health insurance system in which older adults receive coverage, Japan has a dedicated medical care system for those aged 75 and over and a long-term care insurance system which includes those aged 65 and over (Government of Canada, 2019; Government of Japan, n.d., 2017). Both of these dedicated systems are primarily publicly-funded, supported by individual premiums (Government of Japan, n.d., 2017). It is clear from these examples that countries with older populations must make long-term care a strategic and financial priority in order to respond to population health needs. As seen in Table 4.9, Japan has a very similar level of health services coverage and amenable mortality for older adults as for the overall population (GBD 2015 Healthcare Access and Quality Collaborators, 2017; GBD 2019 Universal Health Coverage Collaborators, 2020).

Both examples from these countries highlight the need to prioritize older adults in healthcare service delivery when they form a large percentage of the overall population. This includes placing a priority on long-term care and ensuring that health insurance systems are adequately financed to support demand for age-related health services.

## Young Populations

Some countries, however, are still experiencing predominantly younger populations, with a high dependency ratio, such as Niger. The *Ministère de la santé publique* of Niger places a clear priority on providing and improving the quality of reproductive, maternal, child, and youth services in its current development plan (Republic of Niger, 2016). It states that a “*particular emphasis will be placed on reproductive health activities and especially on family planning in order to improve the health status of vulnerable groups (mothers and children) for the harmonious development of our country*” (Republic of Niger, 2016: xiii). This is a clear indication of systemic prioritization of population-derived health needs, with priorities further reinforced by national health expenditure. From 2016 to 2018, 83.5 up to 89.3% of Niger's total health expenditures on diseases and other health conditions were closely or entirely related to child and maternal health, such as immunization programs, nutritional deficiencies, contraceptive management (family planning), maternal conditions, reproductive health, and infectious and parasitic diseases (World Health Organization, 2020).

As seen in Table 4.10, effective health service coverage and amenable mortality for children and adolescents are greater than for the overall population in Niger (GBD 2015 Healthcare Access and Quality Collaborators, 2017; World Health Organization, 2020). Service delivery for mothers and newborns, however, was thirteen percentage points lower than the overall population. Health services coverage and amenable mortality indicate that Niger's focus on child and adolescent health is strong. However, given the country's

**Table 4.10** Effective coverage of health services and amenable mortality index scores from the Global Burden of Disease for Niger: overall, child, and adolescent populations

	Effective coverage of health services index	Amenable mortality index
Overall population	35	41
Newborns, children, and adolescents (aged 0–14)	–	49
Reproductive health and newborns	22	–
Children aged <5	40	–
Children and adolescents (aged 5–19)	36	–

Source: GBD 2019 Universal Health Coverage Collaborators (2020) and GBD 2015 Healthcare Access and Quality Collaborators (2017)

Index scores are out of 100

Effective coverage of health services index indicators for reproductive health and newborns includes met needs for family planning with modern contraception, and antenatal, peripartum, and postnatal care for newborn babies and mothers. Effective coverage of health services index indicators for children aged <5 includes vaccine coverage of diphtheria-tetanus-pertussis and measles, and treatment of lower respiratory infection, diarrhea, and acute lymphoid leukemia. Effective coverage of health services index indicators for child and adolescent populations (aged 5–19) includes antiretroviral treatment and treatment of acute lymphatic leukemia, asthma, epilepsy, appendicitis, and paralytic ileus and intestinal obstruction. Amenable mortality index indicators for newborns, children, and adolescents (aged 0–14) include diarrheal diseases, whooping cough, chronic measles, and respiratory diseases

very high total fertility rate and great need for reproductive health services, the health needs of women of child-bearing age are not being adequately met.

## Demographically Transitioning Countries

As seen in the first section of this chapter, the percentage of a population aged under 20 years or over 65 years is changing significantly globally and across more developed and less developed regions. While the above examples show countries who have already experienced a shift towards an older population (Canada and Japan), or who are still experiencing a very young population (Niger), there are countries who are currently undergoing an onset of an aging population following a very recent decline in fertility. One example of this in Bangladesh, who may be unable to attain a pace and level of improvement of their dependency ratio.

As seen in Table 4.11, Bangladesh has seen a quicker decline in its population under 20 years than the global and less developed regional averages, whilst concurrently undergoing a

greater increase in its older (65+) population. Therefore, Bangladesh has experienced a shrinking number of providers to dependents on both ends of its population (United Nations, 2019). While this poses challenges for health funding, through a decreasing demographic dividend as outlined in the first section of this chapter, it also poses challenges for the health system to quickly adapt.

In Table 4.12 we see that effective health service coverage for diseases that affect populations under 20 have a higher, on average, rate of coverage than services for diseases that affect an older population. Much of this is driven by high levels of vaccination coverage for children and is not consistent across all services for younger populations. Services for cancers, cardiovascular diseases and other non-communicable ARD/GSs (such a diabetes) are more consistently between 30–50 on a scale of 100. Bangladesh will need to maintain high levels of coverage for services that impact younger populations whilst investing in improvements of services to provide for a growing older population. This will need to be done on a much quicker timeframe than many other less developed countries to adequately meet population health needs.

**Table 4.11** World, less developed regions, and Bangladesh Population by age group (in %)

	1950	1975	2000	2025	2050	2075	2010
<b>Population U20</b>							
World	43.7	46.7	39.4	32.4	28.0	25.5	23.4
Less developed regions	47.5	51.5	42.8	34.4	29.2	26.2	23.9
<i>Bangladesh</i>	<i>51.4</i>	<i>54.3</i>	<i>48.0</i>	<i>33.3</i>	<i>23.0</i>	<i>18.8</i>	<i>18.0</i>
<b>Population 20–64</b>							
World	51.2	47.8	53.7	57.2	56.1	55.0	54.0
Less developed regions	48.7	44.8	52.1	57.2	56.5	55.5	54.4
<i>Bangladesh</i>	<i>44.7</i>	<i>42.7</i>	<i>48.1</i>	<i>60.7</i>	<i>61.2</i>	<i>53.8</i>	<i>48.5</i>
<b>Population 65+</b>							
World	5.1	5.6	6.9	10.4	15.9	19.5	22.6
Less developed regions	3.8	3.8	5.1	8.4	14.2	18.3	21.7
<i>Bangladesh</i>	<i>3.9</i>	<i>3.1</i>	<i>3.9</i>	<i>6.0</i>	<i>15.8</i>	<i>27.4</i>	<i>33.4</i>

Source: United Nations (2019)

**Table 4.12** Effective coverage of health services index scores from the Global Burden of Disease for Bangladesh; U20 and 65+ populations

	U20	65+
<i>UHC effective coverage index Bangladesh</i>		
Antenatal, peripartum, and postnatal care for newborn babies	54	–
MCV1 coverage	22	–
DTP3 coverage	94	–
Diarrhoea treatment	92	–
LRI treatment	96	–
ART treatment	69	–
TB treatment	60	60
Acute lymphoid leukemia treatment	–	79
Breast cancer treatment	7	–
Cervical cancer treatment	–	41
Uterine cancer treatment	–	36
Colon and rectum cancer treatment	–	43
IHD treatment	–	24
Stroke treatment	–	48
Diabetes treatment	–	11
CKD treatment	–	47
COPD treatment	–	52
Asthma treatment	–	51
Epilepsy treatment	15	–
Appendicitis treatment	56	56
Paralytic ileus and intestinal obstruction treatment	94	94
	85	85

Sources: GBD 2019 Universal Health Coverage Collaborators (2020)

Index scores are out of 100

## Urbanization

Urban areas are complex settings for populations, diseases, and healthcare services. Urban areas are associated with both better and worse health

outcomes for residents (Eckert & Kohler, 2014). This makes urban areas difficult for health systems to provide for, and yet demonstrates the need for population dynamics to be considered in health system planning, funding, and service delivery.

As seen in Table 4.7, Indonesia experienced rapid urban growth between the 1970s and 2000s, and Kenya is predicted to continue to experience urbanization into the 2050s. In a 2017 health system review of Indonesia, Jakarta was noted to have the highest number of doctors (both in number per area and ratio to population) and the shortest median distance to the nearest health facility compared to all 33 Indonesian provinces (World Health Organization, 2017). However, it also showed Jakarta as having one of the lowest ratios of midwives to population and was the twelfth highest province for households experiencing catastrophic levels of health expenditure (World Health Organization, 2017). This demonstrates that some health services are easier to obtain in the most urban area of Indonesia, but this is not true for the entire urban population. The Indonesian health system is a decentralized system, with provincial and district/municipal governments responsible for the management of local health services (World Health Organization, 2017). This decentralization was reflected in the most recent *Ministry of Health Strategic Planning Decree (2015–2019)*, with districts and cities responsible for reaching performance targets (Republic of Indonesia, 2015). This should provide incentive for cities to appropriately respond to the health needs of their populations in order to meet nationally set health targets.

The Kenyan *Health Sector Strategic Plan* paints a similar picture of ‘urban advantage’ and ‘urban penalty’ when it comes to health services. Nairobi, the most urban area, was among the top performing provinces for immunization coverage, skilled delivery services, and exclusive breastfeeding between 2013 and 2017 (Republic of Kenya, n.d.). However, Nairobi had a lower level of health facility density (per 10,000 people) than the national average and the majority of provinces (Republic of Kenya, n.d.). The Kenyan *Health Sector Strategic Plan* notes some of the challenges of health in urban areas, including the effects of broader determinants of health and the need for a multi-sectoral approach to realize health goals. An example of this is absolute poverty, for which the Strategic Plan notes that improvements have been mainly felt in urban

areas but not in urban slum areas (Republic of Kenya, n.d.).

Further research is clearly needed into how health systems are responding to population-derived disease burdens in urban areas. Comparing disease morbidity and disease mortality in different neighborhoods of the same city may be able to offer indications of appropriate health services provision for urban populations as well as an ability to adapt to population-derived burdens of disease.

## Migration

Jordan is currently home to over almost three-quarters of a million refugees, primarily Syrian refugees (The UN Refugee Agency, 2019). All refugees who are registered in Jordan can seek healthcare at government health facilities (The UN Refugee Agency, n.d.). Therefore, the health system needs to respond to refugee health needs alongside those of the Jordanian host population. Refugees may bring a similar baseline of the burden of disease to the national population, with additional disease considerations such as an increase in mental health, risks associated with population movement, an increased vulnerability to NCDs, and effects from interruption of care. Jordan has experienced an increased load on its health services in correlation to the high numbers of refugees arriving in the country. The government has recognized high levels of forced migration as a main demographic challenge to healthcare in the country (Hashemite Kingdom of Jordan, n.d.). Specifically, Jordan plans to increase mental healthcare services, increase NCDs control services, and provide community education for relevant infectious diseases, such as tuberculosis, as per the current *Ministry of Health Strategic Plan*, in response to migration-driven population-derived changes (Hashemite Kingdom of Jordan, n.d.). The additional disease burden (in quantity) which refugees add to the national health system must also be considered from a health funding perspective. The additional services required to meet this population’s health needs places enormous financial pressure on the

host country, something which international donors must recognize and support in a sustainable manner.

Globally, progress toward UHC can be seen through an increase in effective health coverage from 45.8% in 1990 to 60.3% in 2019 (GBD 2019 Universal Health Coverage Collaborators, 2020). To continue to work toward achieving UHC and the SDGs, population characteristics will need to be considered in national health strategies. This will allow for health systems to provide relevant and appropriate care to their current and future populations, resulting in better health outcomes for all.

### Conclusion: Looking Forward

The remainder of the twenty-first century will be characterized by the completion of the demographic transition worldwide, by a decline of the population in the more developed regions, and by a steady, albeit slow, improvement of life expectancy at birth more generally. Population aging will continue to impact the burden of disease and will require a shift in the provision of health services, from a focus on providing pediatric and maternal care to providing a wide range of geriatric services. However, this shift, which is already well underway in the more developed countries, has yet to start in many less developed countries, as it is a costly move that many countries cannot afford. Development financiers will need to design health programs that include a larger share of services that cater to the needs of an older population.

The rapid urbanization that less developed regions have started to experience will induce

profound changes in their health system structure. On the one hand, urban health services will need to be strengthened, both in quantity and quality. On the other hand, rural health services will need to adapt in order to cater for changing demographic patterns.

The large number (which may be larger than expected due to an acceleration of global warming) of displaced population and refugees that will migrate to both the more developed regions and nearby underdeveloped countries will add to the complexity of health systems adapting to population needs. Therefore, sustainable ways for host health systems to integrate and cater for these populations need to be urgently explored, including international support for developing-country health systems that have absorbed massive numbers of refugees.

It is clear that the health challenges caused by population dynamics which the world is going to face during the remainder of the twenty-first century are numerous and complex. Will countries be prepared to tackle these challenges? Will the World Health Organization and other multilateral institutions financing global health be ready to support the countries facing these challenges? They could be, but only if they start without further delay preparing for future challenges associated with population-derived healthcare needs.

### Appendix: 15 Diseases Which Accounted for the Largest Proportion of Burden of Disease in the Most Densely Populated Province/State in Kenya, Indonesia, and the United States of America, 2019

	1990		2019		Change	
	MD	LD	MD	LD	MD	LD
<i>Stroke</i>						
<b>Kenya</b>	1.41%	1.28%	3.28%	1.79%	132.00%	39.50%
<b>Indonesia</b>	4.32%	3.67%	8.97%	9.29%	107.60%	153.40%
<b>U.S.</b>	3.68%	3.33%	2.96%	3.01%	-19.60%	-9.70%

(continued)



	1990		2019		Change	
	MD	LD	MD	LD	MD	LD
<i>Ischemic heart disease</i>						
<b>Kenya</b>	0.64%	0.59%	2.34%	1.20%	265.60%	121.40%
<b>Indonesia</b>	3.78%	2.11%	8.31%	5.76%	119.90%	173.30%
<b>U.S.</b>	8.85%	10.21%	7.55%	7.25%	-14.70%	-29.00%
<i>Neonatal disorders</i>						
<b>Kenya</b>	10.56%	19.87%	8.56%	20.84%	-18.90%	4.90%
<b>Indonesia</b>	12.05%	11.20%	4.82%	7.68%	-60.00%	-31.40%
<b>U.S.</b>	5.32%	2.20%	2.35%	1.37%	-55.80%	-37.60%
<i>Diabetes</i>						
<b>Kenya</b>	0.59%	0.45%	2.15%	0.82%	267.10%	82.80%
<b>Indonesia</b>	1.73%	1.29%	5.75%	4.30%	231.50%	234.50%
<b>U.S.</b>	2.39%	2.28%	3.39%	3.40%	41.80%	49.10%
<i>Low back pain</i>						
<b>Kenya</b>	1.00%	0.67%	1.77%	1.13%	74.20%	68.20%
<b>Indonesia</b>	1.99%	1.23%	3.55%	2.71%	78.20%	120.70%
<b>U.S.</b>	3.18%	6.34%	3.82%	5.91%	20.10%	-6.80%
<i>Tuberculosis</i>						
<b>Kenya</b>	2.97%	3.33%	4.34%	3.53%	46.10%	6.00%
<b>Indonesia</b>	7.32%	8.51%	3.05%	4.05%	-58.40%	-52.40%
<b>U.S.</b>	Not in top 15 diseases					
<i>Road injuries</i>						
<b>Kenya</b>	1.50%	0.77%	2.57%	1.19%	71.00%	54.30%
<b>Indonesia</b>	3.98%	2.97%	2.57%	2.74%	-35.50%	-7.70%
<b>U.S.<sup>a</sup></b>	1.86%	5.20%	1.38%	2.97%	-25.80%	-42.90%
<i>Diarrheal diseases</i>						
<b>Kenya</b>	8.94%	9.25%	2.02%	10.18%	-77.40%	10.00%
<b>Indonesia</b>	7.11%	7.13%	2.35%	3.50%	-67.00%	-51.00%
<b>U.S.</b>	Not in top 15 diseases					
<i>Cirrhosis and other chronic liver diseases</i>						
<b>Kenya</b>	1.74%	1.25%	2.79%	2.06%	60.10%	64.30%
<b>Indonesia</b>	2.28%	2.65%	2.69%	3.59%	17.70%	35.70%
<b>U.S.</b>	Not in top 15 diseases					
<i>Depressive disorders</i>						
<b>Kenya</b>	1.39%	0.88%	2.40%	1.42%	72.20%	62.00%
<b>Indonesia</b>	Not in top 15 diseases					
<b>U.S.</b>	1.28%	2.51%	2.14%	2.68%	67.20%	6.90%
<i>Interpersonal violence</i>						
<b>Kenya</b>	1.56%	0.58%	2.29%	1.27%	47.10%	121.40%
<b>Indonesia</b>	Not in top 15 diseases					
<b>U.S.</b>	7.76%	1.01%	4.23%	0.58%	-45.50%	-42.50%
<i>Congenital birth defects</i>						
<b>Kenya</b>	2.48%	3.15%	2.08%	2.91%	-15.90%	-7.50%
<b>Indonesia</b>	3.71%	3.38%	1.87%	2.80%	-49.50%	-17.20%
<b>U.S.</b>	Not in top 15 diseases					
<i>Headache disorders</i>						
<b>Kenya</b>	Not in top 15 diseases					
<b>Indonesia</b>	1.83%	0.96%	2.80%	2.06%	53.30%	114.80%
<b>U.S.</b>	1.53%	2.45%	2.30%	2.05%	50.30%	-16.50%

(continued)

	1990		2019		Change	
	MD	LD	MD	LD	MD	LD
<i>Chronic obstructive pulmonary disease (COPD)</i>						
<b>Kenya</b>	Not in top 15 diseases					
<b>Indonesia</b>	0.98%	1.51%	2.17%	2.81%	120.50%	85.30%
<b>U.S.</b>	1.69%	4.17%	2.27%	5.60%	34.30%	34.40%
<i>Other musculoskeletal disorders</i>						
<b>Kenya</b>	Not in top 15 diseases					
<b>Indonesia</b>	0.84%	0.40%	2.11%	1.20%	151.10%	205.60%
<b>U.S.</b>	1.42%	2.45%	2.82%	3.61%	98.60%	47.30%
<i>Chronic kidney disease</i>						
<b>Kenya</b>	Not in top 15 diseases					
<b>Indonesia</b>	0.97%	1.07%	1.99%	1.99%	106.10%	85.60%
<b>U.S.</b>	1.40%	0.80%	2.39%	1.58%	70.70%	96.10%
<i>Tracheal, bronchus, and lung cancer</i>						
<b>Kenya</b>	Not in top 15 diseases					
<b>Indonesia</b>	0.54%	0.43%	1.92%	1.22%	253.30%	186.10%
<b>U.S.</b>	3.66%	3.52%	2.90%	3.22%	-20.80%	-8.60%

Source: Institute of Health Metrics and Evaluation (2019)

Note: In Kenya, the highest density province is Nairobi, the lowest density province is Marsabit (Humanitarian Data Exchange, 2019a). In Indonesia, the most urban province is Jakarta, the least urban province is East Nusa Tenggara (Humanitarian Data Exchange, 2019b). In the U.S., the highest population density area is the District of Columbia, DC, the lowest population density state is Wyoming (U.S. Census Bureau, 2021)

MD most densely populated province/state. LD least densely populated province/state

<sup>a</sup>Road injuries were the 24th highest DALYs for the most urban area in the U.S., included for reference

## References

- Allender, S., Wickramasinghe, K., Goldacre, M., Matthews, D., & Katulanda, P. (2011). Quantifying urbanization as a risk factor for noncommunicable disease. *Journal of Urban Health*, 88(5), 906–918.
- Campisi, J., Kapahi, P., Lithgow, G. J., Melov, S., Newman, J. C., & Verdin, E. (2019). From discoveries in ageing research to therapeutics for healthy ageing. *Nature*, 571(7764), 183–192.
- Eckert, S., & Kohler, S. (2014). Urbanization and health in developing countries: A systematic review. *World Health & Population*, 15(1), 7–20.
- El Arnaout, N., Rutherford, S., Zreik, T., Nabulsi, D., Yassin, N., & Saleh, S. (2019). Assessment of the health needs of Syrian refugees in Lebanon and Syria's neighboring countries. *Conflict and Health*, 13, article 31.
- Ettman, C. K., Vlahov, D., & Galea, S. (2019). Why cities and health? In S. Galea, C. K. Ettman, & D. Vlahov (Eds.), *Urban health* (pp. 15–23). Oxford University Press.
- Ezeh, A., & Mberu, B. (2019). Case studies in urban health: Nairobi, Kenya. In S. Galea, C. K. Ettman, & D. Vlahov (Eds.), *Urban health* (pp. 332–341). Oxford University Press.
- Flies, E. J., Mavoia, S., Zosky, G. R., Mantzioris, E., Williams, C., Eri, R., Brook, B. W., & Buettel, J. C. (2019). Urban-associated diseases: Candidate diseases, environmental risk factors, and a path forward. *Environment International*, 133(Part A), Article 105187.
- Franceschi, C., Garagnani, P., Morsiani, C., Conte, M., Santoro, A., Grignolio, A., Monti, D., Capri, M., & Salvioli, S. (2018). The continuum of aging and age-related diseases: Common mechanisms but different rates. *Frontiers in Medicine (Lausanne)*, 5(61). <https://doi.org/10.3389/fmed.2018.00061>
- Gassasse, Z., Smith, D., Finer, S., & Gallo, V. (2017). Association between urbanisation and type 2 diabetes: An ecological study. *BMJ Global Health*, 2(4), e000473.
- Gatzweiler, F., Boufford, J. I., & Pomykala, A. (2018). Harness urban complexity for health and well-being. In T. Elmqvist, X. Bai, N. Frantzeskaki, C. Griffith, D. Maddox, T. McPhearson, S. Parnell, P. Romero-Lankao, D. Simon, & M. Watkins (Eds.), *Urban planet: Knowledge towards sustainable cities* (pp. 113–129). Cambridge University Press.
- GBD 2015 Healthcare Access and Quality Collaborators. (2017). Healthcare Access and Quality Index based on mortality from causes amenable to personal health care in 195 countries and territories, 1990–2015: A novel analysis from the Global Burden of Disease Study 2015. *Lancet*, 390(10091), 231–266.
- GBD 2019 Universal Health Coverage Collaborators. (2020). Measuring Universal Health Coverage based on an index of effective coverage of health services in

- 204 countries and territories, 1990–2019: A systemic analysis for the Global Burden of Disease Study 2019. *Lancet*, 396(10258), 1250–1284.
- Government of Canada. (2019). *Canada's health care system*. Ministry of Health. See <https://www.canada.ca/en/health-canada/services/health-care-system/reports-publications/health-care-system/canada.html>. Accessed 6 Jan 2021.
- Government of Japan. (n.d.). *The health and welfare services for the elderly*. Ministry of Health, Labor and Welfare. See <https://www.mhlw.go.jp/english/wp/wp-hw8/dl/10e.pdf>. Accessed 6 Jan 2021.
- Government of Japan. (2017). *Health and medical services*. Ministry of Health, Labor and Welfare. See <https://www.mhlw.go.jp/english/wp/wp-hw11/dl/02e.pdf>. Accessed 6 Jan 2021.
- Hashemite Kingdom of Jordan. (n.d.). *The Ministry of Health Strategic Plan 2018–2022*. Ministry of Health.
- Humanitarian Data Exchange. (2019a). *Kenya: Population per county and sub county from census report*. See <https://data.humdata.org/dataset/fa58ed8d-1daa-48b6-bae1-19746c32c85f>. Accessed 22 June 2021.
- Humanitarian Data Exchange. (2019b). *Indonesia Province Infographic datasets*. See <https://data.humdata.org/dataset/indonesia-province-infographic-datasets>. Accessed 22 June 2021.
- Institute of Health Metrics and Evaluation. (2019). *GDB results tool*. University of Washington. See <http://ghdx.healthdata.org/gbd-results-tool>. Accessed 12 Jan 2021.
- May, J. F., & Guengant, J. P. (2020). *Demography and economic emergence of Sub-Saharan Africa*. Belgian Royal Academy.
- May, J. F., & Turbat, V. (2017). The demographic dividend in Sub-Saharan Africa: Two issues that need more attention. *Journal of Demographic Economics*, 83(1), 77–84.
- Organisation for Economic Cooperation and Development. (2018). *Accounting and mapping of long-term care expenditure under SHA 2011*. Organisation for Economic Cooperation and Development.
- Republic of Indonesia. (2015). *Strategic planning Ministry of Health 2015–2019*. Ministry of Health.
- Republic of Kenya. (n.d.). *Kenya health sector strategic plan. Transforming health systems: Achieving universal health coverage by 2020 (July 2018–June 2023)*. Ministry of Health.
- Republic of Niger. (2016). *Health development plan 2017–2021*. Ministère de la Santé Publique.
- Sobngwi, E., Mbanya, J. C., Unwin, N. C., Porcher, R., Kengne, A. P., Fezeu, L., Minkoulou, E. M., Tournoux, C., Gautier, J. F., Aspray, T. J., & Alberti, K. (2004). Exposure over the life course to an urban environment and its relation with obesity, diabetes, and hypertension in rural and urban Cameroon. *International Journal of Epidemiology*, 33(4), 769–776.
- The UN Refugee Agency. (n.d.). *Help, Jordan*. Health. United Nations High Commissioner for Refugees. See <https://help.unhcr.org/jordan/en/helpful-services-unhcr/health-services-unhcr/>. Accessed 6 Jan 2021.
- The UN Refugee Agency. (2019). *Jordan*. United Nations High Commissioner for Refugees. See <https://www.unhcr.org/jo/12449-unhcr-continues-to-support-refugees-in-jordan-throughout-2019.html#:~:text=As%202019%20comes%20to%20close,total%20of%2052%20other%20nationalities>. Accessed 29 Jan 2021.
- The UN Refugee Agency. (2020). *Global trends forced displacement in 2019*. United Nations High Commissioner for Refugees. See <https://www.unhcr.org/globaltrends2019/>. Accessed 18 Jan 2021.
- Tozan, Y., & Ompad, D. C. (2015). Complexity and dynamism from an urban health perspective: A rationale for a system dynamics approach. *Journal of Urban Health*, 92(3), 490–501.
- Turbat, V. (2017). The demographic dividend: A potential surplus generated by a demographic transition. In H. Groth & J. F. May (Eds.), *Africa's population: In search of a demographic dividend* (pp. 181–195). Springer.
- United Nations. (2018). *World urbanization prospects: The 2018 revision*. United Nations, Department of Economic and Social Affairs, Population Division. See <https://population.un.org/wup/>. Accessed 7 July 2021.
- United Nations. (2019). *World population prospects. The 2019 revision*. United Nations, Department of Economic and Social Affairs, Population Division.
- U. S. Census Bureau. (2021). *Historical population density data (1910–2020)*. U.S. Census Bureau. See <https://www.census.gov/data/tables/time-series/dec/density-data-text.html>. Accessed 22 June 2021.
- Vučković, M., & Adams, A. (this volume). Chapter 18: Population and health policies in urban areas. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- World Health Organization. (2017). *The republic of Indonesia health system review (Health systems in transition. Vol. 7, No. 1)*. WHO Regional Office for South-East Asia.
- World Health Organization. (2019). *Primary health care on the road to universal health coverage 2019 monitoring report*. World Health Organization.
- World Health Organization. (2020). *Global health expenditure database*. World Health Organization. See <https://apps.who.int/nha/database/Select/Indicators/en>. Accessed 6 Jan 2021.
- World Health Organization. (2021). *The global health observatory, disability-adjusted life years*. World Health Organization. See <https://www.who.int/data/gho/indicator-metadata-registry/imr-details/158>. Accessed 6 Aug 2021.
- World Health Organization, Regional Office for Europe. (2021). *Migration and health: Key issues*. World Health Organization. See <https://www.euro.who.int/en/health-topics/health-determinants/migration-and-health/migration-and-health-in-the-european-region/migration-and-health-key-issues>. Accessed 6 Aug 2021.



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The extensive literature on population and development has identified several possible ways in which demographic trends can affect human welfare either positively or negatively. Since the middle of the twentieth century, understanding of the impact of demographic change on the economy has expanded rapidly, with different schools of thought gaining and losing dominance in successive periods accompanied by vigorous debate.

In the 1950s, the UN population projections predicted the large expansion in human numbers that subsequently occurred in the second half of the twentieth century (United Nations, 1954, 1958). When these projections were first published, they led to widespread concern about the potential adverse consequences of rapid population growth for human welfare and the environment, especially in the poor countries of

Africa, Asia, and Latin America. Malthusian concerns that ever-growing numbers of humans pose a threat to long-term human survival by exhausting limited natural resources resurfaced (Ehrlich, 1968; Meadows et al., 1972). In addition, economists discovered economic reasons for concern about adverse development effects of rapid population growth. Coale and Hoover (1958) argued that the savings needed to maintain or raise human and physical capital per capita in a society are higher in rapidly than in slowly growing populations. Population growth thus absorbs savings that could be used to increase capital intensity and raise per capita output. Coale and Hoover also concluded that rapid population growth leads to a high proportion of nonproductive children in the population, which limits savings needed for growing economies. From the 1950s to the mid-1970s, concerns about the adverse economic and environmental effects of rapid population growth dominated academic, political, and popular thinking (NAS, 1971). In an effort to slow rapid population growth, governments, particularly the United States through USAID, and foundations made large investments in family planning programs in the developing world during this time (Donaldson, 1990; Donaldson & Tsui, 1990; Harkavy, 1995; Sinding, 2007; May, 2012).

However, detailed empirical studies from the late 1960s to the 1980s failed to confirm a substantial adverse effect of demographic change on development (Headey & Hodge, 2009; Kelley,

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2001). For example, the correlation between the population growth rate and the growth rate of per capita output of countries turned out not to be significantly negative. This finding contradicted expectations (Kelley, 2001; Kuznets, 1967) and led to a revisionist view that population is largely a neutral factor in development (Simon, 1981). A review of the evidence by the National Academy of Sciences (NAS) in 1986 was highly guarded and qualified about the effects of population growth (NAS, 1986).

This revisionist view was overturned during the 1990s as more sophisticated models and longer time series of data became available. New studies again found an important role for demographic variables (Headey & Hodge, 2009; Kelley, 2001). Seminal research by Barro (1991, 1997) identified fertility decline as an important factor in economic growth. In addition, the previously insignificant correlation between population growth and growth of per capita output turned in the expected negative direction with data from the 1980s and 1990s (Headey & Hodge, 2009; Kelley & Schmidt, 1995, 2001). A plausible explanation for these initially puzzling findings was provided in a thorough review of different modeling approaches by Kelley and Schmidt (1995, 2001). They discovered shortcomings in a number of past analyses and, after correcting these, they concluded that declines in mortality, fertility, and population growth all have positive effects on economic growth per capita. These findings helped explain the change in significance over time in the link between population and economic growth. For example, the studies using pre-1980 data often included many developing countries that were experiencing rapid mortality decline as well as accelerating population growth. According to Kelley and Schmidt, the former's positive effect on economic growth was offset by the latter's negative effect, thus producing an absence of a correlation. In subsequent decades, mortality decline slowed, fertility declined rapidly, and population growth slowed. The negative correlation between growth and development observed from the 1980s onward was attributable to declines in fertility and declining growth rates.

In the 1990s, the finding that fertility decline had a positive impact on development was of great interest to policymakers and led to a set of new studies by economists of what is now called the 'demographic dividend' (see Section "*The Demographic Dividend, Economic Growth, and Poverty*" for further discussion). With the right policies, this demographic dividend offers a potential boost to GDP per capita when fertility decline leads to a reduction in the proportion of children in a population, and hence to a rise in the ratio of workers to dependents. The period during which the dividend is available is bounded but can range up to decades.

Our overall objective here is to document the role of the demographic dividend in economic development in less developed countries and to summarize policy options for strengthening the dividend. The chapter is organized into four sections. First, we describe the demographic transition and the evolution of key demographic variables over the period from 1950 to 2100, with an emphasis on declining fertility and the changing population age structure that are the drivers of the dividend. Next, we examine the demographic drivers of the dividend and its potential impact on economic growth and poverty. Third, we outline theories of fertility decline and the desire for smaller families. The fourth section discusses policy options for enhancing the dividend by expanding access to voluntary family planning programs to meet rising demand for contraception. The focus throughout our analysis is on sub-Saharan Africa (SSA), the only global region that has not yet largely experienced the demographic dividend and thus where the potential for a future dividend is greatest.

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## Demographic Transition

The 'demographic transition' refers to a process of long-range demographic change observed historically in populations around the world. During the transition, demographic conditions evolve from high mortality and high fertility to low mortality and low fertility, with a period of rapid population growth in the middle of the transition

(Chesnais, 1990, 1993; Kirk, 1996). The demographic transition *model* describes the distinct patterns of secular changes in birth, death, and growth rates that have historically accompanied the transformation of traditional agricultural societies into modern industrial ones. The body of research developed to explain these trends is referred to as demographic transition *theory*.

### The Transition Model

A complete transition is typically divided into five successive stages (Chesnais, 1990). Stage 1: pre-transition (high birth and death rates, and little or no population growth, typical of traditional agricultural societies); stage 2: accelerating population growth (declining death rate while birth rate remains high); stage 3: continued population growth (birth rate decline offsets death rate decline), stage 4: decelerating growth (rapid birth rate decline narrows the gap between birth and death rates); and stage 5: post-transition (birth and death rates low and growth near zero, typical of modern societies) (see Fig. 5.1). The key events driving the demographic transition are the onset of the mortality transition in stage 2 and the onset of the fertility transition in stage 3.

A full transition can last more than a century, during which the size of the population typically grows by an order of magnitude. For example, the world population, estimated at about one billion in 1800, now stands at 7.6 billion and is projected to reach eleven billion in 2100 (United Nations Population Division, 1999, 2019). This growth during the demographic transition results in a transition multiplier of eleven between 1800 and 2100. The transition in today's developed countries started earlier and has proceeded at a slower pace than for contemporary developing countries. As a result, the transition multipliers for the period 1800–2100 for developed and developing countries differ substantially at six and thirteen, respectively (United Nations Population Division, 1999, 2019).

While past transitions have generally followed the outlines of the model, countries vary widely in the timing of their mortality and fertility

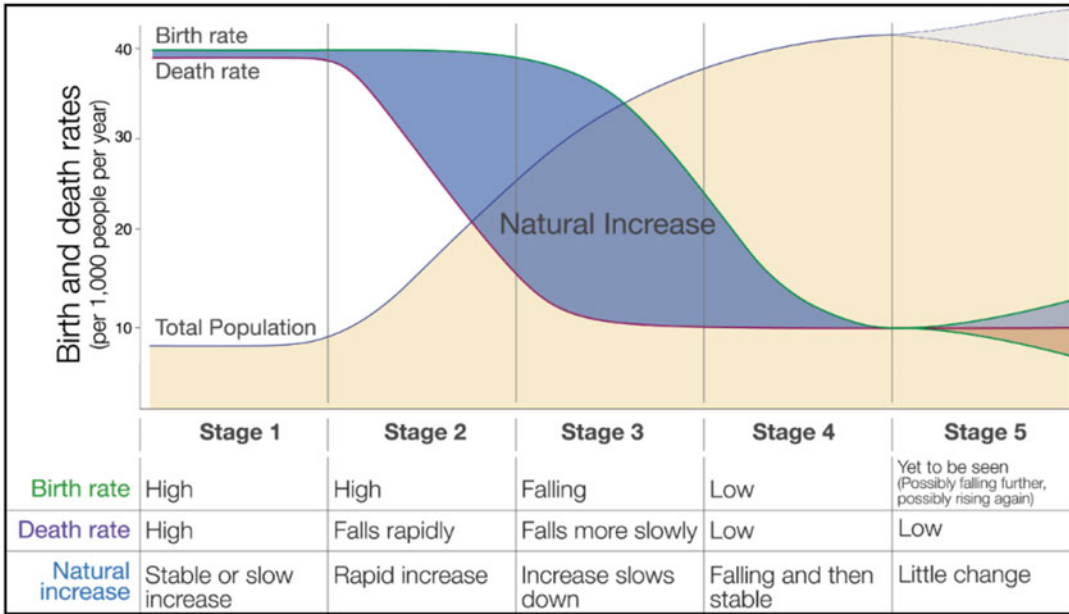
transitions as well as the durations of the various stages. In addition, fluctuations in birth and death rates often occur.

### Transition Theory

The earliest elements of a transition theory were proposed by Thompson (1929) and Landry (1934) and were later refined by Davis (1945), Notestein (1945), and others (e.g., Caldwell, 2007; Chesnais, 1993). The theory has two parts, dealing respectively with the causes of the mortality and the fertility transitions.

There is broad agreement about the drivers of past mortality declines in the developed world (Chesnais, 1990, 1993; Cutler et al., 2006; Livi-Bacci, 1992; Riley, 2001). The mortality transition started in England and Northern Europe early in the nineteenth century and spread subsequently to other industrializing countries in Europe and elsewhere. Life expectancy at birth rose from less than 40 years in the eighteenth century to around 50 years by 1900 (Human Mortality Data base, 2019; Livi-Bacci, 1992). Several factors contributed to this improvement in longevity: public health measures reduced exposure to water- and food-borne diseases; better nutrition improved resistance to disease; and inoculation and vaccination prevented certain infectious diseases. The largest impact of these factors on life expectancy and overall mortality rates came from declines in death rates among infants and children, where mortality had been concentrated in pre-transition societies.

Mortality decline accelerated after 1900, driven primarily by: (a) the institutional acceptance of the germ theory of disease that led to a range of measures to reduce exposure and transmission; and (b) the development of antibiotics that brought most infectious diseases under control. By the 1950s, life expectancy at birth in the most advanced countries had risen to 70 years and all but a small percent of infants survived the first years of life. These countries have now reached the final stage of the mortality transition, in which mortality is concentrated in older ages and healthcare focuses substantially on the treatment



**Fig. 5.1** The five stages of the demographic transition. (Source: [OurWorldinData.org](https://ourworldindata.org), licensed under CC-BY-SA by Max Rosen)

and prevention of chronic diseases among the older adult population, e.g., heart disease, cancer, and diabetes. While further progress is being made in the treatment of these diseases, it is likely that future improvements in life expectancy will be less rapid than over the past century, given the substantial gains in infant and child survival in nearly all countries.

The mortality transition in the regions that developed later or are still developing followed a quite different pattern, with later but accelerated declines in mortality compared to the European and North American experiences. Declines in mortality in these developing regions were modest through the early part of the twentieth century: by the early 1950s life expectancy was only 38 years in Africa and 42 years in Asia, with Latin America faring somewhat better with a life expectancy of 51 years (United Nations Population Division, 2019). However, over the past half century mortality conditions in large parts of the developing world have improved more rapidly relative to historical patterns in the developed world due to rising incomes, improved nutrition

levels, access to medical care, and especially the implementation of public health measures and the availability of antibiotics and other drugs. Today, life expectancy at birth in Latin America and the Caribbean (75) and Asia (73) is similar to that of Europe in the 1960s. Africa, the least developed continent, has a life expectancy of 63 years and lags other global regions even though life expectancy has risen by about 10 years over the past half century (United Nations Population Division, 2019).

The fertility transition in the industrialized countries started in the late 1800s. Aside from a substantial interruption of this trend during the post-war baby boom, these countries now have very low fertility. In fact, in several countries (e.g., Japan and Russia) the birth rate has fallen and stayed below the death rate, leading to sustained population decline (United Nations Population Division, 2019) and concerns about the economic impact of aging and shrinking populations. Declines in fertility in developing regions did not begin until the 1960s and 1970s, and were largely confined to Asia, Latin America,

and North Africa. In contrast, in SSA fertility remains relatively high although by now most African countries have experienced at least some decline. A fuller discussion of the debate about the causes of fertility changes will be provided in Section “*Theories of Fertility Decline*” of this chapter.

Demographic transition theory has been criticized for being too general and for having little predictive power (Hauser & Duncan, 1959; Kirk, 1996). Its main weakness is that the conditions for the timing of onset of the mortality and fertility transitions are highly variable and are not closely tied to any development indicators. Nevertheless, the theory is widely cited and used, and it is correct in predicting general declines in death and birth rates as societies develop (Coale, 1973).

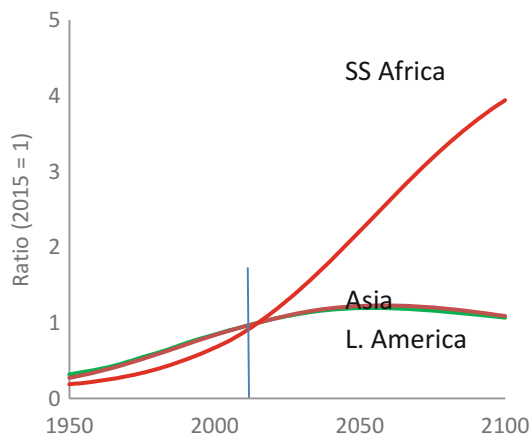
### Key Transition Trends

Today most of the world is at or near the end of the demographic transition. Europe, North America, and East Asia have reached transition stage 5, with near-zero or even negative population growth. Latin American and South Asian countries are mostly in stage 4, with declining fertility and growth rates. However, SSA is still in mid-transition, with substantial declines in mortality but relatively high birth rates and rapid

growth. These different transition stages at which regions find themselves today imply large regional differences in future population growth. According to UN projections, the population of SSA is expected to quadruple between 2015 and 2100 (from one to four billion), while the populations of Asia and Latin America, which are also growing, are forecast to be only slightly larger in 2100 than they are today (see Fig. 5.2).

The main causes of these divergent regional projected population growth trajectories are differences in levels and trends in fertility. Figure 5.3 plots estimates and projections of fertility (measured in births per woman) over the 1950–2100 period. In the 1950s and 1960s, women in Asia, Latin America, and SSA had on average about six children. These levels are approximately the same as have prevailed for much of history and reflect a near absence of contraception.

In Asia and Latin America, steep fertility declines began around 1970 with the rapid uptake of contraception. These two regions are today close to the ‘replacement’ level of two surviving children per woman that eventually leads to population stabilization, where a population has a growth rate of zero. In contrast, fertility across most of SSA remained high until the end of the twentieth century. Projections of future fertility decline in the region vary but nearly all forecasts predict it will decline slowly in the coming



**Fig. 5.2** Population size ratio (2015 = 1). (Source: United Nations Population Division, 2019)



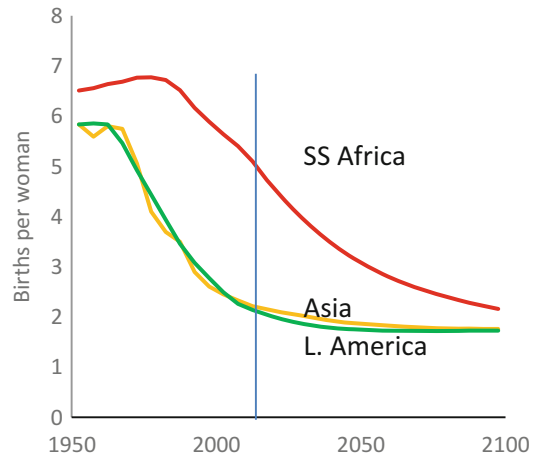
decades relative to declines in Asia and Latin America. Elevated fertility, coupled with further declines in mortality and population momentum due to a young age structure, will lead to continuous population growth in SSA throughout the remainder of this century.

Fertility is the most central component of population dynamics. In addition to determining population size and growth trajectories, fertility changes have an important direct effect in shaping the age distribution. For example, about half of the population was under age 18 before 1970 in Asia, Latin America, and SSA (see Fig. 5.4). However, as fertility declines proceeded in Latin

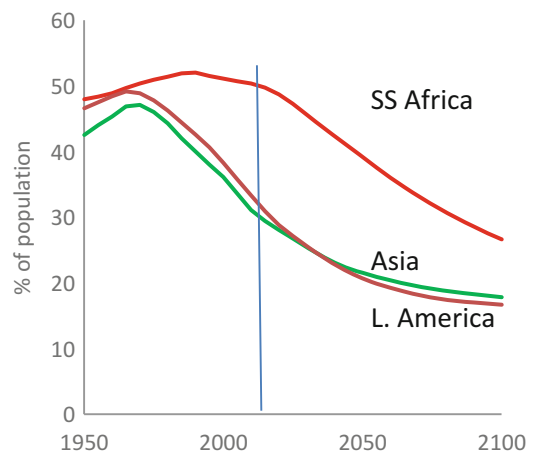
America and Asia in the 1970s and 1980s, the proportion of children declined rapidly to around 30% by 2015 (United Nations Population Division, 2019). In contrast, the slower fertility declines in SSA resulted in a much slower decline in the proportion of the population under 18. As expected, comparison of Figs. 5.3 and 5.4 shows a close correspondence between trends in fertility and trends in the child proportion, although the latter follows the former with a delay of one to two decades.

Another indicator of the changing age structure is the proportion of the population of working age (usually taken to be between 18 and

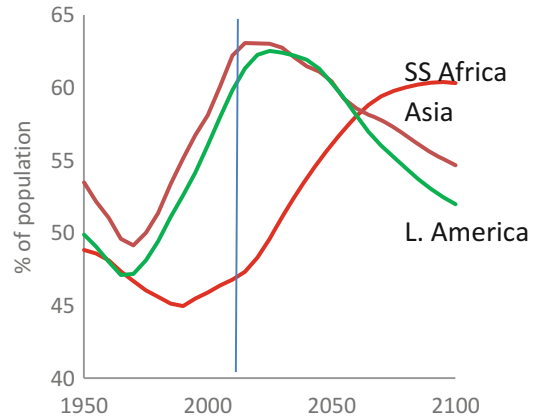
**Fig. 5.3** Fertility trends



**Fig. 5.4** Percent of population under Age 18. (Source: United Nations Population Division, 2019)



**Fig. 5.5** Percent of population aged 18–64



64 years). Figure 5.5 plots estimates and projections of regional averages of this proportion from 1950 to 2100. The substantial swings up and down over time are, not surprisingly, inversely related to changes in the proportion of the population under age 18. In Asia and Latin America, the substantial declines in the proportion under age 18 after 1970 led to a sharp rise in the proportion aged 18–64 between 1970 and about 2015. A quite different pattern is evident in SSA, however, where the later and slower onset of the fertility decline leads to a later and slower onset of decline in the child proportion of the population and hence to a delayed rise in the proportion of working age relative to other regions.

A demographic dividend occurs during the years when the proportion of the working age population rises relative to dependents (children and the elderly). This dividend is highest when fertility declines are rapid, leading to substantial increases in the proportion of the population that is ‘economically active’ in a relatively short period of time. This window of opportunity for accelerated economic growth from changing population age structures provided by the demographic dividend is today essentially completed in Asia and Latin America, but in SSA the timing and the size of a demographic dividend are still uncertain and will depend largely on future trends in fertility.

As will be discussed in the next section, these changes in the population age distribution, as well as the speed and size of these changes, can have

important implications for economic growth and poverty reduction.

## The Demographic Dividend, Economic Growth, and Poverty<sup>1</sup>

### The Demographic Dividend

The substantial age-structure shifts that are caused by fertility decline in the later stages of demographic transitions can boost economic growth through the demographic dividend (Ahmed et al., 2016; Bloom et al., 2009; Bloom & Canning, 2004; Bloom & Williamson, 1998; Canning et al., 2015; Cruz & Ahmed, 2016; Eastwood & Lipton, 2011; Higgins & Williamson, 1997; Karra et al., 2017; Kelley & Schmidt, 1995, 2005, 2007; Lee & Mason, 2006; Mason & Kinugasa, 2008; World Bank, 2015a). The economic literature on the topic makes a distinction between two types of demographic dividend.

The first demographic dividend (also called the arithmetic dividend or the labor-force accelerating effect) refers to the rise in per capita income that results, other things being equal, from an increase in workers per capita as the population age-structure changes. This first dividend can be considered mechanical and is

<sup>1</sup> This section draws heavily on the work by World Bank (2015a, b); Ahmed and Cruz (2016); Ahmed et al. (2016); Cruz and Ahmed (2016); and Hasan et al. (2019).

essentially guaranteed as the age structure changes with decreases in fertility. This effect is *independent* of any changes or improvements in output per worker, savings and investments, and the employment rate. Estimates suggest that for some countries the first demographic dividend explains between 9.2% to 15.5% of per capita economic growth over the 1960–2000 period (Mason & Kinugasa, 2008). Though the first demographic dividend can persist for decades, it is ultimately transitory and is eventually followed by economic pressures related to population aging.

The second demographic dividend refers to additional increases in per capita income that result from changes in economic behavior as the age structure changes. In particular, national savings and investment rates often rise as income-earners become a greater share of the population. Individuals are typically net savers when they are of working age, but they tend to be predominantly consumers when they are children and elderly. As fertility declines, there are fewer children to support and national savings tend to rise (e.g., Higgins & Williamson, 1997; Kelley & Schmidt, 2005; Kinugasa & Mason, 2007). For example, an increase of one percentage point in the share of the working-age population is associated with an increase of 0.6 to 0.8 percentage point in savings (Cruz & Ahmed, 2016; World Bank, 2015a). Greater investments in fewer children, resulting in a more skilled workforce, can in turn lead to faster productivity growth, provided this workforce is productively employed. In addition, labor supply may expand as mothers with lighter childrearing responsibilities find it easier to enter (and remain in and/or re-enter) the labor market.

The causality underpinning the association between working-age population shifts and economic growth thus occurs through multiple pathways: through an increase in the supply of workers relative to the total population, through a rise in savings leading to a higher capital per worker ratio, and through more investment in human capital. While these channels can work simultaneously, the first and second dividends

differ not only in their transmission mechanisms but also in the time horizon over which they are at work: the first dividend on average occurs earlier than the second dividend, but the two typically overlap. As a result of these two demographic dividends, an increase of one percentage point in the working-age population share is estimated on average to boost GDP per capita growth rates by 1.1–2 percentage points (Cruz & Ahmed, 2016; World Bank, 2015a).

It should be emphasized that the size of the overall demographic dividend depends greatly on whether governments implement the right supportive policies. Dividends will be small if the quality of education is poor, jobs are lacking, and the economic and political environment is not conducive to growth. On the other hand, demographic dividends reach their maximum potential if governments: (a) train young people well so that the future workforce will be productive—this requires investments in the education system to expand the number and quality of teachers, schools, etc.; (b) ensure a dynamic economy that provides decent jobs for new entrants into the workforce, not an economy hobbled by excess regulation, taxes, and corruption; and (c) create a stable political environment. Wars, civil unrest, high crime, unstable governments, and uncertain property rights all put a damper on economic growth. The rapid growth in standards of living in the Asian tiger economies since the 1960s provides a good example of the large demographic dividends available to countries that combine very supportive demographic and economic policies. This topic is examined more fully in Chap. 19: *Policies Needed to Capture Demographic Dividends* of this *Handbook* (Turbat, [this volume](#)).

## Modeling the Demographic Dividend

The magnitude of the future potential demographic dividend in SSA depends on trends in a range of country-level economic and demographic variables that are influenced by the global economy (see Chap. 22: *Population Policy*

*Models of this Handbook* [Moreland, [this volume](#)]). For present purposes, we rely on the World Bank LINKAGE model (a global general equilibrium model), and the newly developed Global Income Distribution Dynamics (GIDD) tool. LINKAGE provides the economy-wide effects of demographic change over time and the GIDD micro-simulation framework generates income distributions under various scenarios (Bourguignon & Bussolo, 2013; Bussolo et al., 2010). GIDD draws on household-level survey data benchmarked to 2010 to estimate income distributions that account for demographics, household characteristics (e.g., age, gender, and education of different members), sector of employment, skill premia on wages, and income.

In assessing the economic impact of alternative demographic trends, our analysis relies on four demographic scenarios (constant fertility, high fertility, medium fertility, and low fertility) and the associated projections of population age structures published by the United Nations Population Division (2015). The Medium variant represents the most likely trajectory while the High variant assumes fertility to be a half birth above the Medium variant and the Low variant assumes future fertility to be a half birth below the Medium variant. The economic results associated with these four scenarios are obtained by stimulating economic growth projections using the structural reforms scenario with acceleration in Total Factor Productivity from Bou Habib and Lofgren (World Bank, 2017).

An analysis with the LINKAGE model by Ahmed et al. (2016) concluded that accelerated demographic change could result in 11–15% of GDP volume growth and approximately 40–60 million fewer poor by 2030 for SSA.<sup>2</sup> It should be noted that the scenario analysis does not account for discrete structural changes in the economy such as may occur as a result of unan-

ticipated infrastructure investments. As such, the simulation results should be considered illustrative and highlighting the marginal economic impacts of demographic change.

### **Fertility Decline and the Demographic Dividend in the Democratic Republic of the Congo**

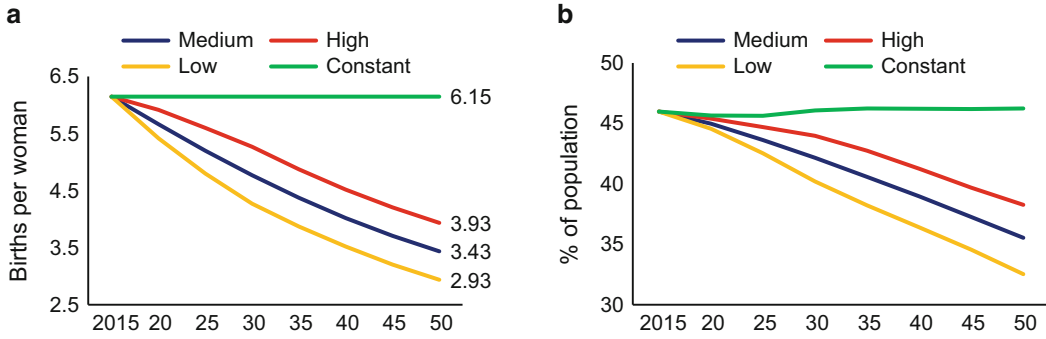
We use the Democratic Republic of the Congo (DRC) as an example of a country in which modest accelerations in fertility decline can lead to substantial changes in its projected age structure. The DRC had a total fertility rate (TFR) of 6.15 in 2015, one birth per woman above the average for the continent. However, over a quarter of married women (27.7%) have an unmet need for family planning, implying that women have on average more children than they would like.

Under the UN Medium fertility scenario, the TFR is projected to fall to 4.77 by 2030 and 3.43 by 2050 (Fig. 5.6a). The UN does not specify how these changes will be brought about, but, as will be shown below, it will likely involve a combination of socioeconomic change and meeting the current unmet need for family planning.

With this fertility decline in the Medium scenario, the population share of children under 18 will decline steadily for several decades to come (Fig. 5.6b). In 2015, children under 18 accounted for 46% of the population. This proportion is expected to decline slowly under this scenario to approximately 42% in 2030 and 35% in 2050.

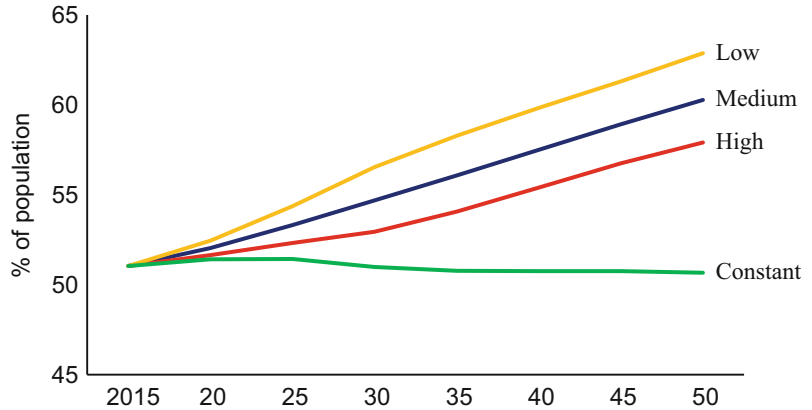
The working-age population in the DRC in 2015 accounted for 51% of the population and is projected to account for more than 60% of the population by 2050 under the UN Medium fertility scenario (see Fig. 5.7). If, however, fertility declines are slower, as under the High fertility scenario (which assumes some fertility decline from current levels, albeit more modest), then the 2050 population share of working age will be lower, at 58%. In contrast, if fertility reductions are faster in the future, as under the

<sup>2</sup> The model was also used to examine the impact of demographic change on the global economy (World Bank, 2015a), South Africa (World Bank, 2015b), and the Southern African Customs Union economies (Ahmed & Cruz, 2016).



**Fig. 5.6** Fertility scenarios and projected proportion of the population under 18 for the DRC. (a) Total fertility rate by fertility scenario (births per woman). (b) Share of children in population by fertility scenario (percent). (Source: Data from United Nations Population Division, 2015)

**Fig. 5.7** Share of working age people in total population by fertility scenario (percent), DRC. (Source: Data from United Nations Population Division, 2015)

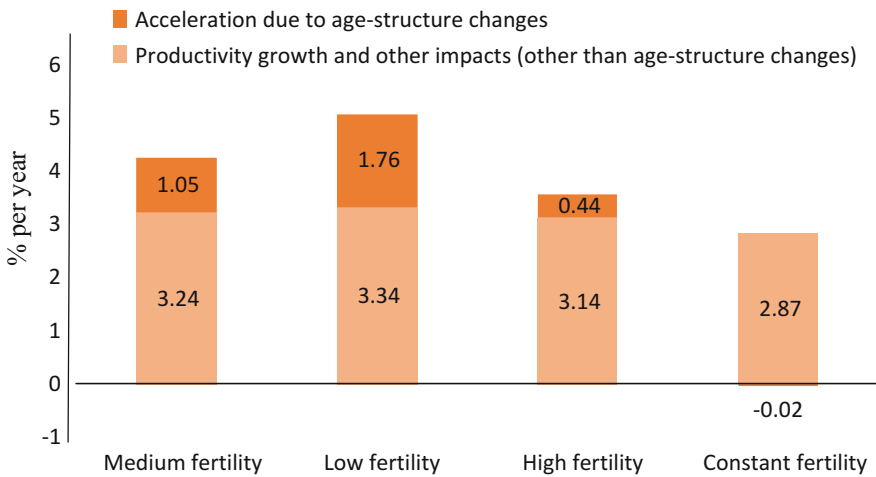
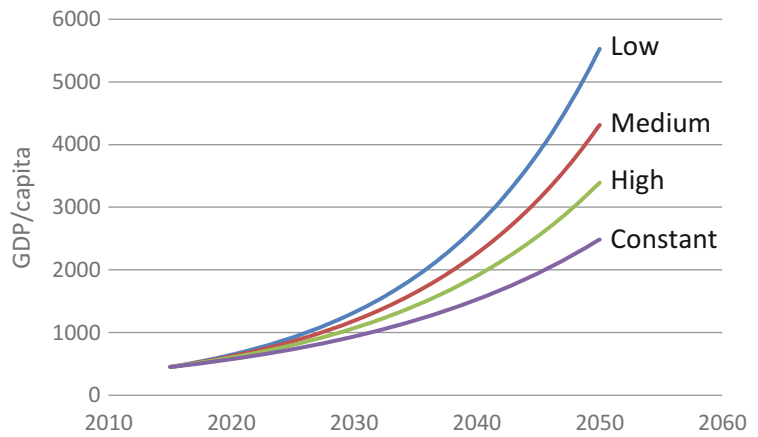


UN Low fertility scenario, potential workers will account for 63% of the population by 2050.

To illustrate the potential impact of fertility changes on economic growth, we estimate the economic implications of alternative demographic scenarios, accounting for both age distribution and population size, with simulations of DRC’s economic growth trajectory to 2050 using the LINKAGE model (see Fig. 5.8). Using a constant set of assumptions of economic growth and the UN Medium fertility scenario, real GDP per capita in the DRC is projected to grow from

USD 452 (constant USD) in 2015 to USD 4311 by 2050. With the same set of assumptions of economic growth under the high-fertility scenario, however, growth is projected to be more modest, reaching only USD 3391 by 2050. Under the low-fertility scenario, per capita income in 2050 is projected to be much higher at USD 5527. A comparison of these high- and low-fertility scenario projections indicates that, other things being equal, a one-child difference in DRC’s fertility rates by 2050 would result in age-structure changes that could lead to a 63%

**Fig. 5.8** Real GDP per capita growth in 2050 by fertility scenario, DRC. (Source: Simulation results from LINKAGE)



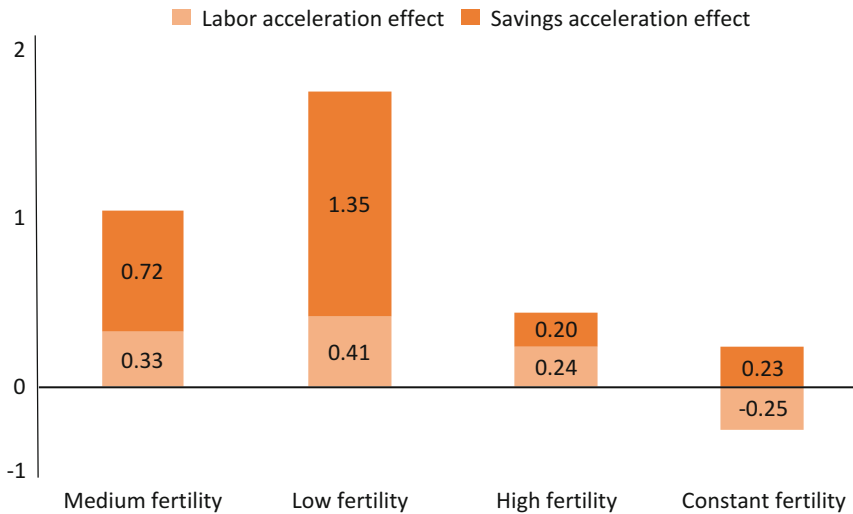
**Fig. 5.9** Decomposition of average annual real GDP per capita growth rates, by fertility scenarios with structural reforms (Decomposed by Contributing Factor, 2018–2050, in Percent), DRC. (Source: Simulation results from LINKAGE)

difference in real GDP per capita in one of the world’s poorest countries.

Figure 5.9 illustrates the projected growth rates of real GDP per capita for the DRC from 2018 to 2050, decomposed into two components: (1) productivity growth and other impacts; and (2) acceleration attributable to demographic changes (i.e., age-structure changes favorable to a demographic dividend). These results imply that age-structure changes resulting from declining

fertility alone could increase the income per capita growth rate by 0.44, 1.05, and 1.76% per year in 2018–2050 for the high-, medium-, and low-fertility scenarios, respectively.

Figure 5.10 plots the age-structure effects on the per capita growth rate, decomposing it into the first and second dividends. These results indicate that the main demographic contributions to growth in per capita income under these scenarios are from the savings acceleration effect (leading



**Fig. 5.10** Contributions to age structure-related income per capita acceleration, by fertility scenarios with structural reforms (2018–2050, in percent), DRC. (Source: Simulation results from LINKAGE)

to faster capital accumulation), rather than the acceleration of the labor force.

Though these scenario projections are illustrative, they nonetheless demonstrate the substantial impact declines in fertility can have on economic growth, particularly if the right structural reforms are implemented during the demographic dividend window. Expanding family planning programs to meet the contraceptive needs of the Congolese population, now and in the future, will have the positive by-product of producing an age structure that will contribute to accelerated economic growth. A key question for policymakers therefore, is how fertility decline can be accelerated, by strictly voluntary means, in populations where actual fertility exceeds desired fertility. This is the subject of the remaining sections of this chapter.

## Theories of Fertility Decline

The causes of past declines in fertility are the subject of continuing debate. Over time, several theories and their variants have been developed, each with important new insights that are crucial

to an understanding of reproductive change and to the design of optimal policies.

## Conventional Theories

Original demographic transition theory proposed various possible causes of the fertility decline that occurred in the West from the late nineteenth century through the 1930s (Davis, 1945; Notestein, 1945). In traditional rural agricultural societies, fertility was assumed to be necessarily high to offset high mortality and to ensure population survival. This high fertility was achieved by a near universal absence of conscious contraceptive practices. As a society modernized, economic and social changes such as industrialization, urbanization, education, and declining mortality led to the onset of the fertility transition. The rising costs of children (e.g., for schooling) and their declining economic value (e.g., for labor and old-age security) were the central forces believed to be driving the decline in desired family size. This in turn increased the demand for and adoption of birth control to implement changing reproductive preferences.

This conventional framework, still regarded as broadly valid, has been the basis for various elaborations by economists, sociologists, and demographers. Contributions by economists to fertility theories focused on the micro-economics of reproductive decision-making (Becker, 1960, 1965, 1981; Lee & Bulatao, 1983; Schultz, 1976, 2002; Willis, 1974). Parents are assumed to be rational actors who aim to maximize the utility derived from various choices they make given time and resource constraints. This decision-making includes choices related to conventional goods and services as well as to children. In choosing a family size, parents have preferences not only for the number of children but also for their 'quality' (i.e., their education and economic opportunities). As countries develop, parents increasingly want higher-quality children which raises their cost, thus leading parents to want smaller families. This school of thought is usually referred to as 'demand theory'.

Empirical evidence is broadly consistent with demand theories: countries' fertility levels are inversely related to socioeconomic indicators such as GDP per capita, life expectancy, child survival, education, and urbanization (Bryant, 2007). As countries develop, fertility behavior broadly changes along the lines proposed by demand theories. This is the course taken by the now-developed world, where fertility declines began in the late nineteenth century, and also by many developing countries in recent decades. However, there are notable exceptions to this generalization. For example, fertility has declined rapidly in a few countries during periods with unfavorable development conditions (e.g., in Bangladesh, Indonesia, Nepal, and Sri Lanka in the 1970s and 1980s). The general explanations for these unexpected fertility declines are the priority given by governments to social development (e.g., schooling and women's empowerment) and the widespread implementation of family planning and health programs. While social development certainly played a crucial role, it is critical to note that to date, no fertility decline has been observed in a poor and largely illiterate country in the absence of a strong family planning program (see Section "*Policy Options for*

*Enhancing the Demographic Dividend: The Role of Family Planning Programs*" of this chapter).

A weakness of conventional demographic transition theory is its generality. Many socioeconomic indicators are correlated with fertility in bivariate cross-sectional comparisons of countries, but for many decades there was no agreement on the dominant driver of fertility decline. However, the extensive literature on this topic increasingly emphasized the central role of education and especially women's education (Cleland, 2009; Cochrane, 1979; Gaylor, 2005; Hadden & London, 1996; Jejeebhoy, 1995; Kravdal, 2002; Lloyd, 2003; Lutz & Skirbekk, 2014; Murkin, 2013; Schultz, 1994; Summers, 1992a, b). A recent comprehensive regression analysis of the determinants of fertility using time series of data from 1870 to 2000 concludes that "...average years of primary schooling among the adult population, rather than income standards, child mortality, or total mortality rates, drive fertility down by about 40 percent to 80 percent when those years grow from zero (no illiteracy) to six years (full literacy). This result is robust to a variety of specifications, samples, and econometric models" (Murkin, 2013: 617). Similarly, Cleland (2009: 183) concludes: "Education of adults persistently emerges as the single most powerful predictor of their demographic behavior." Lutz and Skirbekk (2014: 15) agree: "...educational attainment is not just one of many socio-economic factors that matter...[it] is the single most important source of empirically observable population heterogeneity."

Several causal forces have been proposed for the effect of women's education on fertility, including: greater autonomy in decision-making, more knowledge about reproduction and contraception, higher potential for earnings, and rising opportunity costs of childbearing (Diamond et al., 1999; Jejeebhoy, 1995; Lloyd, 2003). A related set of studies examines the role of mass schooling which may lower fertility in developing countries by reducing the child's potential to work in or outside the home, raising the costs of children, speeding up cultural change, and propagating middle-class values (Caldwell, 1980).



While there is a growing consensus about the key role of education as a driver of fertility decline, as well as about the minor roles of GDP per capita and percent urban, there is less agreement about the effect of child mortality, specifically in contemporary contexts. Several authors argue for a role of mortality decline as a determinant of fertility (Angeles, 2010; Canning et al., 2015; Cleland, 2001b), but others have argued that research has not produced concrete findings in part because of methodological shortcomings (Wolpin, 1998), leaving a consensus on the mechanisms and impact of mortality decline on fertility decline unresolved (Angeles, 2010; Murtin, 2013). It is possible that Notestein's original views, that mortality decline is a necessary but not sufficient condition for fertility decline and that social and economic changes are needed to bring about reproductive change, are correct (Notestein, 1945). The 'necessary but not sufficient' hypothesis is consistent with the pattern observed in a number of contemporary Western African countries (e.g., Chad, DRC, Mali, and Niger), where child mortality has been reduced by half since the 1950s, but these improvements have only been followed by minor fertility declines (United Nations Population Division, 2019).

## Revisionist Theories

Since the 1970s, the fertility component of conventional demographic transition theory has been found incomplete in several respects and questions have been raised about demand theories of fertility. First, a crucial assumption of early demand theories is that the cost of contraception is sufficiently low to be ignored. This assumption became questionable in the late 1960s and early 1970s when new evidence documented the frequent use of induced abortion in both developed and developing countries and demonstrated that unintended pregnancies were common (Rochat et al., 1980; Tietze, 1981). These findings contributed to an influential revision of the earlier economic theories of fertility by Richard Easterlin (Easterlin, 1975, 1978; Easterlin & Crimmins,

1985). His framework for the determinants of fertility recognized that the cost of birth control (broadly defined to include economic, health, psychological, and social obstacles) could be substantial, thus leading to significant numbers of unplanned pregnancies. In addition, the framework acknowledged the role of biology in child-bearing outcomes, specifically that without efforts to control conception, women who are sexually active will bear large numbers of children because the reproductive years last decades. Thus, to avoid having 'excess' children, parents must practice birth control, a fact that makes the 'acquisition' of children fundamentally different from the purchase of durable goods.

A second fundamental challenge to demand theories came in the 1980s when empirical tests of conventional theories were conducted using historical and contemporary data and failed to find the tight link between development indicators and fertility expected from conventional theories. For example, the massive study of province-level data from European countries for the period 1870–1960 (Coale & Watkins, 1986; Knodel & van de Walle, 1979; Watkins, 1986, 1987) yielded two surprising conclusions: (1) socioeconomic conditions were only weakly predictive of fertility declines, and transitions started at widely varying levels of development; and (2) once a region in a country had begun a decline, neighboring regions sharing the same language or culture followed after short delays, even when they were less developed. Likewise, results from numerous fertility surveys of women in 41 developing countries in the 1970s and early 1980s failed to find the expected dominant influence of economic characteristics on fertility (Cleland, 1985; Cleland & Wilson, 1987). Moreover, levels and trends in fertility in the developing world since the 1950s deviated widely from expectations (Bongaarts & Watkins, 1996). For example, Hong Kong and Singapore started their fertility transitions when they had much higher levels of income, literacy, and urbanization than Bangladesh, where fertility decline began when the country was still largely rural and agricultural. Thus, although most traditional societies do have high fertility when compared to modern

industrial societies, the transition itself is poorly predicted by customary quantitative measures of development.

These unexpected findings required a revision of thinking about the fertility transition and led to the development of theories of the ‘diffusion’ of innovations (e.g., Bongaarts & Watkins, 1996; Casterline, 2001; Cleland, 2001a; Cleland & Wilson, 1987; Hornik & McAnany, 2001; Knodel & van de Walle, 1979; Kohler, 2001; Montgomery & Casterline, 1993, 1996; Retherford & Palmore, 1983; Rogers, 1973, 2003; Watkins, 1987). Diffusion refers to the process by which new technologies, ideas, behaviors, and attitudes spread within a population through a variety of mechanisms (e.g., social networks, opinion leaders, media). This spread is most rapid within linguistically and culturally homogeneous populations and is often largely independent of social and economic changes. In particular, the diffusion of information about methods of contraception is now considered an important mechanism of fertility change. New ideas about the costs and benefits of children that may lead to a smaller desired family size are also subject to diffusion processes.

A third issue left relatively unexplored by earlier demand theories of fertility is the key role of social norms. Traditional demand theory focused on the reproductive behavior and decision-making of individuals or couples, but largely ignores how this behavior is affected by social norms about how people ought to behave. This is an important obstacle to the introduction of new behaviors such as contraceptive use in societies where it has been absent. The existence of social norms also explains why the fertility of women in a given socioeconomic class (e.g., education) varies so much between countries. This finding can be explained in part by the fact that the fertility of a woman depends not only on her own education but also on that of her community (Kravdal, 2002): as the level of education within a community increases over time, norms concerning desired family size within that community decline, thus contributing to reduced fertility of all women in the community.

Traditional norms, including those that encourage high fertility, tend to become less influential as societies develop and education levels rise. While conventional demographic and economic theories emphasize the demand-driven nature of reproductive change and leave little or no role for family planning programs (Pritchett, 1994), the now widely accepted revisionist theories assign crucial roles to the cost of birth control and to diffusion mechanisms. These findings provide a strong rationale for family planning programs that can accelerate fertility transitions by providing information that can alter parents’ evaluation of the costs and benefits of children and, more directly, reducing the various costs of contraception to those who want to plan or limit childbearing. These issues are the subject of the next section.

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### **Policy Options for Enhancing the Demographic Dividend: The Role of Family Planning Programs**

After 1950, population growth in Africa, Asia, and Latin America increased sharply as the spread of new medical technology and public health measures reduced death rates while birth rates remained high. Largely as a result, the world population expanded from 2.5 to 7.4 billion between 1950 and 2015 (United Nations Population Division, 2019). This rapid population growth, which was sometimes unfortunately characterized as a ‘population explosion’ in the West (Ehrlich, 1968), led national and international policymakers to become concerned about the threat of this growth to improvements in the standard of living and the overall well-being of people in poor societies. Many governments in the developing world – with substantial international assistance – implemented voluntary family planning programs to provide access to and information about contraceptives (Cleland et al., 2006; May, 2012; Robinson & Ross, 2007). These programs aimed to assist women and men to control their reproductive lives and to avoid unwanted childbearing, thus reducing the

population growth rate in the fastest-growing regions of the world.

These family planning programs have not been without controversy since their initiation (Bongaarts & O'Neill, 2018; Bongaarts & Sinding, 2009; Connelly, 2008; Mosher, 2008; Pritchett, 1994). The most persistent opposition has come from conservative religious and social groups, for whom one of the main concerns is that making contraception readily available encourages promiscuity and leads to a breakdown of family life. Other concerns about family planning programs have been raised by human rights and women's rights advocates who fear coercion. They point to examples of massive abuses by the Chinese government during the implementation of the One-Child policy, and by the Indian government during an emergency period in the late 1970s (Connelly, 2008; Mosher, 2008; Sen et al., 1994). These abhorrent practices were and are universally condemned, and international concern over such coercive birth control practices led to the emphasis on voluntary family planning and the movement for rights-based family planning. Despite these criticisms of earlier national family planning programs and the need for ongoing vigilance to prevent coercion, most governments around the world now support and invest in family planning programs. As any form of coercion for fertility or family planning is completely unacceptable, in the text below the term 'family planning program' refers strictly to voluntary programs that fully respect the rights of women and men.

Other objections to family planning programs come from economists who have argued that investments in family planning programs are not effective (e.g., Pritchett, 1994). But this line of argument has been criticized for overlooking the impact of family planning programs on decreasing unwanted fertility (Günther & Harttgen, 2016; Lam, 2011), particularly during the rise in exposure to the risk of unwanted pregnancies that occurs as desired family size declines (Bongaarts, 1994, 1997; Bongaarts & Casterline, 2018). It also ignores the abundant evidence for the wide-ranging obstacles to practicing contraception

noted below and the existence of large numbers of unintended pregnancies and abortions (Darroch et al., 2017).

## Rationale

The choice of family planning programs as the main policy instrument to meet people's reproductive needs, and by extension to accelerate fertility decline, is based largely on the documentation of an unsatisfied demand for contraception, which is often referred to and measured as an 'unmet need' for contraception (Casterline & Sinding, 2000; Westoff & Bankole, 1995). Unmet need refers to the status of women who are at risk of pregnancy and say they do not want to get pregnant within 2 years but are not currently using contraception. Many married or sexually active unmarried women report in surveys that they do not want a pregnancy within the next 2 years, but a substantial proportion of these women (more than half in some countries) are not using contraception. Worldwide, approximately 227 million women have an unmet need for modern contraception and are thus at risk of unplanned pregnancy (United Nations Population Division, 2018).

The reasons for the nonuse of contraception among women who are motivated not to become pregnant are varied and include: a lack of access to contraceptives and related services; the cost of contraception; fear of side effects; ambivalence about a pregnancy; infrequent sexual activity; and person opposition or opposition from spouses, other family members, and religious or political leaders (Bongaarts & Bruce, 1995; Casterline et al., 1997, 2001; Casterline & Sinding, 2000; Cleland et al., 2006; El-Zanaty et al., 1999). These obstacles to contraceptive use are the cause of an unmet need for contraception. This unmet need inevitably results in unintended pregnancies, many of which can have detrimental health and economic effects for women, children, and families (Singh et al., 2014). Early in the reproductive years many unintended pregnancies and births are mistimed but ultimately wanted,

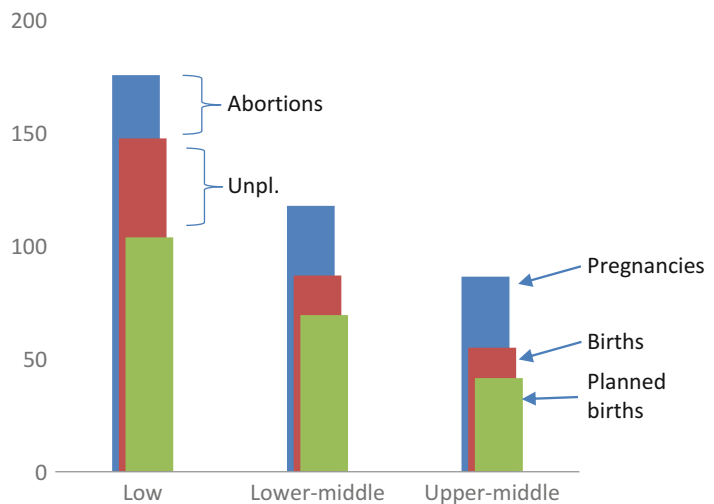
while in later years unintended pregnancies or births are usually unwanted at any time because women have reached their desired family size and unplanned pregnancies mean they ultimately have more children than they want. Unintended pregnancies lead to two distinct outcomes: induced abortions and unintended births (ignoring a small number of stillbirths and miscarriages).

In low- and middle-income countries, about 76 million unintended pregnancies occur each year, accounting for 40% of all pregnancies across these countries. Many of these unintended pregnancies end in an induced abortion (48 million per year) and the remainder in unintended births (Darroch et al., 2017). These statistics vary by the country’s level of development (see Fig. 5.11). As expected, the overall pregnancy rate of a country is inversely related to level of development; the average rate ranges from 175 (per 1000 women) in low-income countries to 86 in upper middle-income countries. The outcomes of these pregnancies also vary by income level. The unintended proportion ranges from 41% in low-income countries to 52% in upper middle-income countries and the proportion of unintended pregnancies ending in abortion are 39% and 70%, respectively.

### Family Planning Program Components

To be successful in helping women and couples avoid unintended pregnancies, family planning programs must go beyond simply providing physical access to contraceptive supplies and reduce or eliminate other obstacles to contraceptive use as well. Therefore, comprehensive voluntary family planning programs have two broad objectives. The first is to offer women and couples easy access to a wide range of affordable, reliable, and high-quality contraceptive methods and related services. This leads to a rise in contraceptive use as women and couples are better able to implement their preferences for delaying, spacing, or limiting childbearing. The second is to reduce or eliminate barriers men and women who want to use contraception may face. These barriers can include social norms that encourage large families or discourage contraceptive use, incorrect understanding of or rumors about contraceptive side effects, systematic bias by family planning providers, and a lack of support from men or partners, among others. Addressing these barriers to contraceptive use among those with unmet need can be done through a number of approaches, including: (1) education campaigns through mass media, called IEC (information, education, and communication) or BCC

**Fig. 5.11** Annual rates of reproductive events per 1000 women aged 15–49. (Source: Darroch et al., 2017)



(behavioral change communication); (2) communications aimed at service providers to increase levels of knowledge and to encourage improvements in the quality of services; (3) increasing women's empowerment and agency; (4) collaboration with community leaders; (5) ensuring that others with significant influence on women's contraceptive behavior (e.g., husbands, partners, mothers-in-law) have accurate information about family planning and the costs and benefits of childbearing; and (6) informing the opinions and decisions of policymakers regarding laws, regulations, and other structural factors that are also barriers to contraceptive use. The reduction in obstacles and the implementation of education campaigns also play an important role in increasing overall demand for contraception and for smaller families. This topic is further examined in Chap. 27: *The Contraceptive Revolution* of this *Handbook* (Cleland, [this volume](#)).

By meeting these two objectives of providing access to contraceptives and addressing barriers to use, family planning programs can ensure that those who want to space or limit their births have access to high-quality contraceptive services, thus reducing unintended pregnancies.

### Program Impact on Contraceptive Use

The large numbers of unintended pregnancies occurring each year leave no doubt that millions of women and couples lack full control of their reproduction. It is therefore not surprising that well-designed family planning programs can help people implement their fertility preferences and reduce unintended births and abortions. Evaluations of these programs have found that they have a significant impact on contraceptive use and fertility (Bongaarts & Hardee, 2019; Günther & Harttgen, 2016; Miller & Singer Babiarz, 2016), thus demonstrating the ability of family planning programs to both meet existing contraceptive needs and encourage positive social norms and enabling environments around contraceptive use. Three different approaches have been used to obtain impact estimates of family

planning programs across a wide range of periods and contexts.

### Controlled Experiments

This is the gold standard for evaluating interventions, but very few large-scale controlled experiments have been conducted to assess family planning programs because they are expensive and take a long time to complete. The largest and most influential of these experiments, the Family Planning and Health Services Project (FPHSP), started in the late 1970s in Matlab, a rural district in Bangladesh (Cleland et al., 1994; Phillips et al., 1982). At that time, Bangladesh was one of the poorest and most highly agricultural countries in the world, and there was widespread skepticism that family planning would be accepted in such a traditional society. The FPHSP divided the Matlab district (population of 173,000 in 1977) into experimental and control areas of approximately equal size. The control area received the same very limited services as the rest of the country, while in the experimental area comprehensive high-quality family planning services were provided, aimed at reducing the costs (monetary, social, psychological, and health) of adopting contraception. The experimental area provided free services and supplies of a range of modern contraceptive methods; home visits by well-educated female family planning workers; regular follow-up to address health concerns; comprehensive multimedia communication; menstrual regulation services; and outreach to husbands, community leaders, and religious leaders to address potential social and familial objections from men.

The impact of the program was large and immediate (Cleland et al., 1994). Within 2 years, contraceptive use jumped from five to 33% among married women in the experimental area while little change occurred in the control area. As a result, fertility declined more rapidly in the experimental than in the control area and a difference of 25% (around 1.5 births per woman) was maintained through the 1980s until the services in the rest of the country were also improved.

A similar but more complex quasi-experimental study was conducted in the Navrongo district of Northern Ghana in the 1990s, where over a third of women wanted to space or limit additional births but few were using contraception. Though direct estimates of changes in contraceptive use from the Navrongo project are not available, the evaluation found the project led to improved knowledge and use of modern contraception and to a decline in the TFR of one birth per woman in the initial 3 years of the project, a 15% decline in fertility relative to comparison areas (Debpuur et al., 2002).

### Natural Experiments

‘Natural experiments’ compare two populations with similar social, economic, cultural, and religious characteristics, but with differing approaches to family planning programs. Differences between these populations in contraceptive use and fertility demonstrate the potential impact of voluntary family planning (Bongaarts et al., 2012; Cleland, 1994; Lee et al., 1998).

An instructive example is a comparison of Bangladesh and Pakistan, which were one country from 1947 until 1971 and have had similar cultures and levels of social and economic development. However, the countries differed remarkably in their commitment to voluntary family planning. After the success of the Matlab experiment, the government of Bangladesh implemented one of the world’s most comprehensive family planning programs starting around 1980, while Pakistan’s program remained weak and relatively ineffective and lacked government funds and commitment (Cleland & Lush, 1997).

Bangladesh’s high-quality and far-reaching family planning program is likely the main cause of the large current gap in modern contraceptive prevalence rate (mCPR) among married women between the two countries. Starting at very low levels in the early 1970s, the mCPR in Bangladesh rose to 55.7% in 2015, compared to a mCPR of 28.6% in Pakistan, a 27.1 percentage points difference (United Nations Population Division, 2017). Estimates of unmet need during the 1975–1980 period are hard to

come by, but showed clear differences by the early 1990s (30.5% in Pakistan in 1990–1991 compared to 21.6% in Bangladesh in 1993–1994), a trend that continued in the following decades (20.1% in Pakistan in 2012–2013 compared to 13.5% in Bangladesh), implying that Bangladesh was better meeting the family planning needs of its population.

Similar differences in the mCPR exist for pairs of countries in SSA with comparable overall socioeconomic profiles but substantial differences in implementation of supportive family planning programs and policies: Ethiopia and Nigeria, and Rwanda and Burundi. Contraceptive use increased to substantially higher levels in countries with stronger programs (Ethiopia and Rwanda) than in corresponding weaker program countries (Nigeria and Burundi).<sup>3</sup> The current difference between the mCPR of the stronger and weaker program countries ranges from 22 to 29% (see Fig. 5.12).

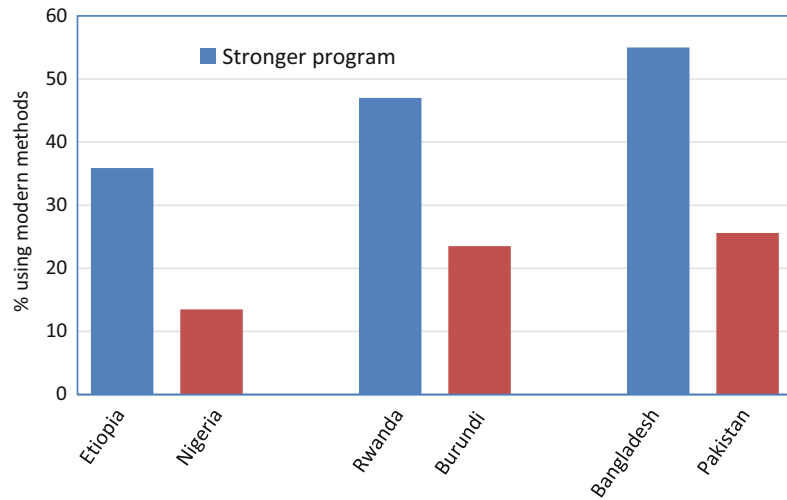
These country comparisons should be regarded as rough approximations of impact for several reasons: (1) the level of development in the pairs of countries is not exactly the same even though indicators such as the Human Development Index (HDI) are similar; (2) the difference between the weaker and stronger programs does not give an estimate of the total program impact in the strong program country, because the weaker programs have some effect that cannot be ignored; and (3) context-specific social, economic, and political factors that may directly relate to family planning programs. To address these issues of comparability, regression analyses are needed.

### Regression Analyses

In the absence of experimental evidence, researchers have relied on regression analysis to estimate the fertility and contraceptive use effects of family planning programs. As noted earlier, the extensive literature on the determinants of fertility identifies two general factors as the main drivers of fertility declines in the developing world over

<sup>3</sup> The strength of family planning programs is measured with the PS index described below.

**Fig. 5.12** Prevalence of modern contraception 2015. (Source: United Nations Population Division, 2017)



the past half century: socioeconomic development, in particular education, and the implementation of family planning programs. Regression analyses have been used to estimate the separate impact of development vs. family programs on contraceptive use and fertility change (Bongaarts & Hardee, 2019; Günther & Harttgen, 2016; Pritchett, 1994). In these regressions, contraceptive use or fertility are the dependent variables and the independent variables consist of a set of socioeconomic indicators, plus an indicator of family planning program effort.

A key issue in these regressions is the measurement of the strength of a program in a country, which is not straightforward. The oldest indicator is the Family Planning Program Effort (FPE) score, which has been used since the early 1970s to gauge the strength of national programs (Kuang & Brodsky, 2016; Mauldin & Ross, 1991; Ross & Smith, 2011). To obtain this score, knowledgeable observers in each country answer questions about a variety of program characteristics and policy actions. Their responses are combined to yield an overall FPE score. Over the past three decades, the FPE score for countries has been measured in eight cycles ending in 2014. However, the FPE suffers from some shortcomings. Differences between countries and across cycles can occur simply

because the experts often must make subjective assessments and the experts change over time. In addition, the questions included in the index have been refined and changed over time. As a result, differences between FPE scores of countries and trends for individual countries should be interpreted with caution.

More recently, Bongaarts and Hardee (2017) have proposed an alternative program indicator called *Public-sector family planning program impact score* to measure the quality and scope of the government's public family planning program. It equals the product of the proportion of demand that is satisfied by modern methods and the proportion of modern methods that is provided by the public sector. This score can be consistently measured over time in countries with Demographic and Health Surveys (DHSs) and it does not rely on subjective assessments. It ranges from zero in the absence of a government program to a theoretical value of 100 for the strongest public programs where all demand for contraception is met by the public sector. For simplicity, we will refer to this variable as the 'program score' (PS).

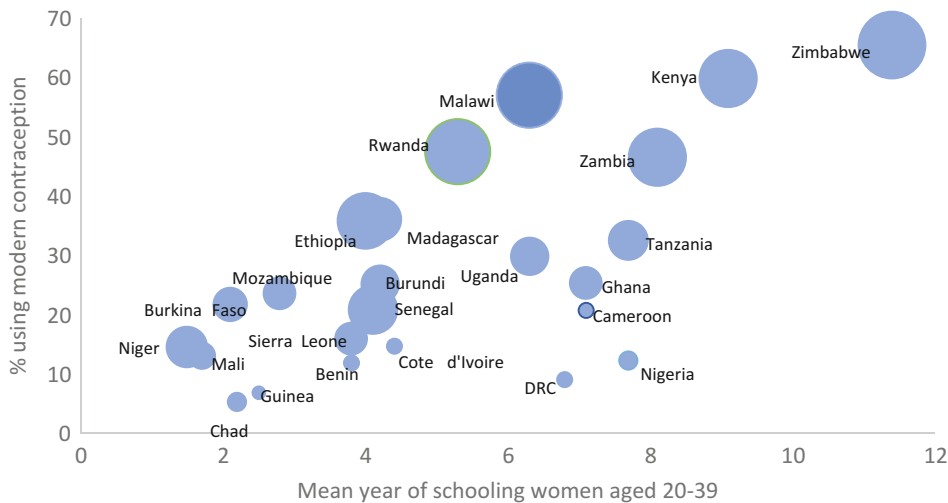
To provide a first look at the relationship between socioeconomic variables, program score, and contraceptive use, we plot in Fig. 5.13 the prevalence of modern contraception (mCPR) by

the mean years of schooling among women aged 20–39. The figure contains 24 markers, one for each of 24 countries in SSA, representing observations at the most recent DHS (ca. 2013). The size of the round marker is proportional to the program score of the country which ranges from five in DRC to 62 in Zimbabwe.

If female education were the only determinant of the mCPR, the observations for all countries would fall on a single upward sloping line. This is clearly not the case, indicating an impact of programs and other factors. In general, the higher the level of women’s educational attainment and the higher the program score, the higher the mCPR. A key finding is that at any level of women’s educational attainment, the mCPR varies widely. For example, in the countries with schooling levels between 6 and 7 years, the mCPR ranges from 9% in DRC to 57% in Malawi. As will be shown below, the differences among these countries with similar levels of women’s educational attainment are to a large extent the result of program differences. The findings in Fig. 5.13 suggest that education and program score both have a substantial effect on mCPR, but quantifying these effects requires formal regression analysis.

A detailed regression analysis of mCPR trends in SSA was carried out by Bongaarts and Hardee (2019). In their multivariate regressions, the mCPR was the dependent variable and the explanatory variables included: (1) education as measured by the average years of schooling among women aged 20–39 (‘women’s education’); (2) GNI/cap (PPP); (3) child mortality (ages 0–5); and (4) program score, PS. The analysis included data from 1990 to 2015 in 24 countries in SSA with at least two Demographic and Health Surveys (DHSs) and with a population size above five million in 2015. Data from all available DHSs in each country were included (ICF International, 2019). Fixed effects models estimated the mCPR impact of the explanatory variables. By using countries as their own controls, fixed effects models account for time-stable differences among countries, which may otherwise introduce bias into parameter estimation.

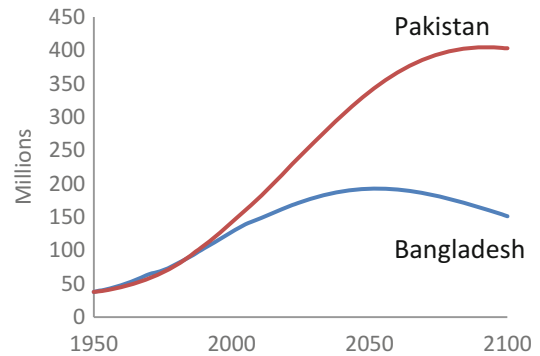
The main findings of this exercise were: (1) women’s education and program score have a strong and highly significant effect on mCPR, while the other explanatory variables did not; and (2) model estimates of the absolute program effect ranged from 30 to 40% in the countries



**Fig. 5.13** Contraceptive prevalence by mean years of schooling and program score (circle), 24 sub-saharan countries 2015. (Sources: United Nations Population Division, 2017; Wittgenstein Center, 2015)



**Fig. 5.14** Population projections  
Bangladesh and Pakistan.  
(Source: United Nations  
Population Division, 2019)



with the highest program scores (i.e., Ethiopia, Kenya, Malawi, Rwanda, Zambia, and Zimbabwe).<sup>4</sup>

In sum, the three different approaches to estimating the mCPR impact of the best and highest-quality family planning programs yield the following results: (1) 28% for the controlled experiment in Matlab; (2) 22–29% for differences between stronger and weaker programs in ‘natural experiment’ comparisons of countries; and (3) 30–40% for the absolute effects of the strongest programs in SSA in regression analyses. These findings are broadly consistent with one another because the first and second approaches underestimate the absolute program by ignoring any program effect in the weaker program countries or control area.

### Program Impact on Fertility and Population Trends

By addressing the reproductive needs of couples, family planning programs reduce unmet need and raise contraceptive prevalence. This effect in turn reduces fertility and population growth, changes the age structure, and increases the demographic dividend.

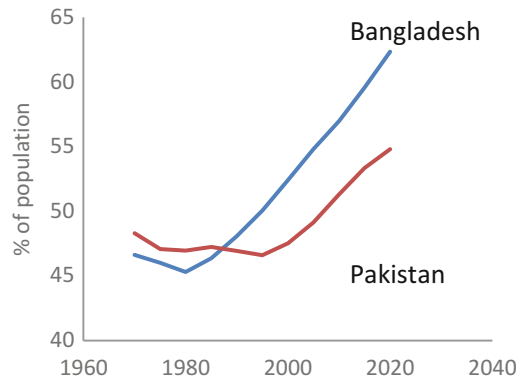
To illustrate, we compare fertility and population trends in Pakistan and Bangladesh. In 1975–1980, the two countries had nearly the same high fertility of 6.8 births per woman, but trends diverged in subsequent decades, with more rapid declines in Bangladesh than in Pakistan. By 2010–2015, Bangladesh’s fertility declined to 2.2 births per woman, while in Pakistan fertility stood at 3.8, a difference of 1.6 births per woman.

These different fertility trajectories in turn resulted in increasingly large differences in population size over time (see Fig. 5.14). In 1980, the two populations were virtually the same size (about 80 million), but by 2100, Pakistan’s population is projected to be double the size of Bangladesh’s (403 vs. 151 million) (United Nations Population Division, 2019). This suggests that the Bangladesh family planning program led to a large cut in the country’s potential 2100 population. Fertility and population trends are also affected by levels of socioeconomic development, but this is unlikely to be the dominant explanation for the different population trajectories. Development levels, as measured by the Human Development Index, have been similar for Bangladesh and Pakistan, which are both poor agricultural majority-Muslim countries in South Asia (UNDP, 2016).

The different fertility trajectories of Pakistan and Bangladesh also affect trends in the age structure and the demographic dividend. Figure 5.15 plots the proportion of working age people for the two countries from 1970 to 2015. After 1980 (the time of the onset of fertility decline in Bangladesh), the

<sup>4</sup> It should be emphasized that a proportion of this contraceptive use has little effect on fertility because it overlaps with postpartum infecundability (see Bongaarts, 2015).

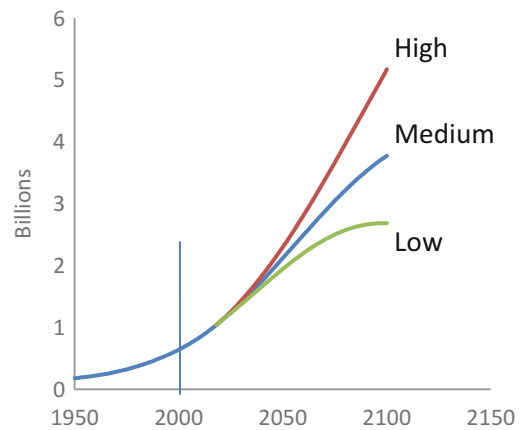
**Fig. 5.15** % Population aged 18–64  
Bangladesh and Pakistan.  
(Source: United Nations Population  
Division, 2019)



proportion of working age grew substantially faster in Bangladesh than in Pakistan. The economy also grew faster in Bangladesh than in Pakistan after 1990 (5.9 vs. 3.9% per year) (World Bank, 2017). There are of course other factors that contributed to the growth in Bangladesh, but the demographic tailwind is no doubt a key factor.

As noted earlier, the potential for a demographic dividend in SSA lies mostly in the future. To assess the potential demographic impact of a substantial investment in family planning programs in this continent, we compare the High and Low variants of the UN population projections for SSA (United Nations Population Division, 2019). The only difference between these two projection variants is the fertility level assumed in the future: the High variant exceeds the Low variant by one birth per woman. Such a one-birth decline is achievable with the implementation of a high-quality family planning program.

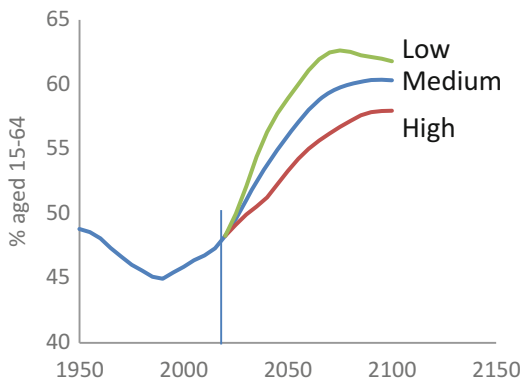
According to the Medium variant, the population of SSA will quadruple in size from one billion in 2015 to 3.8 billion in 2100 (see Fig. 5.16). This projection assumes a steady decline in fertility and includes the impact of the AIDS epidemic. The High variant (with fertility a half birth higher than in the Medium variant) projects 5.2 billion people in 2100. Despite high rates of unmet need across the region, this trajectory could well become reality if no significant further investments are made in family planning, because past fertility declines have been much slower in SSA than in Asia and Latin America.



**Fig. 5.16** Population projections, Sub-Saharan Africa.  
(Source: United Nations Population Division, 2019)

The UN Low variant projection (with fertility a half birth below the Medium variant) estimates a population of 2.7 billion in 2100. This Low variant could well be achieved with substantial new investments in family planning to meet a rising demand for contraception as desired family size declines. In that case, the population of SSA in 2100 would be nearly 2.5 billion lower than projected in the UN High variant and 1.1 billion below the Medium variant. Clearly, a small reduction in fertility has a large impact on future population growth.

The alternative UN population projections also differ in their associated age distributions. Figure 5.17 plots the proportion of working age



**Fig. 5.17** Percent of population aged 18–64, Sub-Saharan Africa. (Source: United Nations Population Division, 2019)

people for each projection variant in SSA. As expected, the High variant (with the highest fertility) has a much lower pace of increase in this proportion than the Low variant. The peak of the dividend period occurs in the next few decades with the dividend about twice as large in the High than in the Low variant (the result of a difference in the pace of increase in the proportion of the working age population).

## Conclusion

The demographic dividend provides the opportunity for an additive stimulus to economic growth in developing countries with declining fertility. Policymakers interested in the potential for accelerated economic growth offered by the demographic dividend have two general options. First, invest in the underlying socioeconomic factors that are the main drivers of the transitions in fertility and desired family size. Given the evidence reviewed here, this implies strengthening education systems, especially for girls. However, education alone is not sufficient to bring about improvements in contraceptive access and use among those with demand, because women of all education levels need access to high-quality and reliable contraceptive products and services to implement their reproductive preferences. It is therefore also necessary

to provide women and couples with access to and information about contraceptive methods, the main goal of family planning programs.

Education has long been a development priority for governments and international organizations. It ranks as a top priority in both the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) because of its widely recognized benefits for individuals and societies, and funding for this sector has risen steadily over past decades (United Nations, 2015, 2017).

The same cannot be said for family planning programs, despite strong evidence of their positive impact on health, women's empowerment, and development outcomes. Funding for family planning programs declined during the late 1990s and early 2000s, in part because of opposition from critics noted above but also because of increased attention and funding addressing HIV/AIDS and to the perception that the epidemic would halt population growth in much of SSA. Reproductive health and rights were not included in the original MDGs. Fortunately, interest in family planning programs has returned over the past decade, attributable in part to the increasingly persuasive evidence for a critical role to the demographic dividend in accelerating economic growth.

The return of family planning and reproductive health on the global agenda as one of the SDG targets (Target 3.7: *By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes*) is a very welcome development, particularly for the millions of women around the world who lack access to these services. However, this target is part of the SDG goal number 3, which focuses on health outcomes. Unfortunately, this limited health sector positioning downplays the contribution that family planning can make as one of the most cost-effective development interventions available to governments and the international development community, leading non-health policymakers to overlook the

importance of increasing access to family planning for overall population well-being. Family planning programs have wide-ranging potential benefits at the individual and societal levels, including contributing to women's empowerment, increased schooling enrollment and quality, improvements in child health (through longer birth intervals), positive impacts on economic growth, and long-term environmental sustainability (Bongaarts, 2016; Cleland et al., 2006; Kohler & Behrman, 2014; NRC, 1997; Singh et al., 2014).

Reclassifying family planning as a development intervention, in addition to a health and human rights intervention, would give it the higher priority on the national and global development agendas it deserves. In 2014, only 1% of official development assistance was allocated to family planning programs. Increased investments in access to contraception for the hundreds of millions of women around the world with an unmet need for family planning would lead to a more cost-effective use of scarce development resources, thus contributing to improvements in standards of living globally.

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## References

- Ahmed, A., & Cruz, M. (2016). *Making the most of demographic change in Southern Africa* (World Bank policy research working paper 7798). World Bank Group.
- Ahmed, A., Cruz, M., Go, D., Maliszewska, M., & Osorio-Rodarte, I. (2016). How significant is sub-Saharan Africa's demographic dividend for its future growth and poverty reduction. *Review of Development Economics*, 20(4), 762–793.
- Angeles, L. (2010). Demographic transitions: Analyzing the effects of mortality on fertility. *Journal of Population Economics*, 23(1), 99–120.
- Barro, R. (1991). Economic growth in a cross-section of countries. *Quarterly Journal of Economics*, 106, 407–443.
- Barro, R. (1997). *Determinants of economic growth: A cross-country empirical study*. MIT Press.
- Becker, G. (1960). An economic analysis of fertility. In National Bureau of Economic Research (Ed.), *Demographic and economic change in developed countries* (pp. 209–231). Princeton University Press.
- Becker, G. (1965). A theory of the allocation of time. *The Economic Journal*, 75(299), 493–517.
- Becker, G. (1981) (1991). *A treatise on the family* (2nd). Harvard University Press.
- Bloom, D., & Canning, D. (2004). Global demographic change: Dimensions and economic significance. In *Global Demographic Change: Economic Impacts and Policy Challenges*. Proceedings of a Symposium sponsored by the Federal Reserve Bank of Kansas City. Jackson Hole, WY, August 26–28, 9–56.
- Bloom, D., Canning, D., Fink, G., & Finlay, J. E. (2009). Fertility, female labor force participation, and the demographic dividend. *Journal of Economic Growth*, 14(2), 79–101.
- Bloom, D., & Williamson, J. (1998). Demographic transition and economic miracles in emerging Asia. *World Bank Economic Review*, 12(3), 419–456.
- Bongaarts, J. (1994). The impact of population policies: Comment [on Lant H. Pritchett]. *Population and Development Review*, 20(3), 616–620.
- Bongaarts, J. (1997). The role of family planning programmes in contemporary fertility transitions. In G. Jones, R. Douglas, J. Caldwell, & R. D'Souza (Eds.), *The continuing demographic transition* (pp. 422–444). Clarendon Press.
- Bongaarts, J. (2015). Modeling the fertility impact of the proximate determinants: Time for a tune-up. *Demographic Research*, 33(19), 535–560.
- Bongaarts, J. (2016). Slow down population growth. *Nature*, 530, 409–412.
- Bongaarts, J., & Bruce, J. (1995). The causes of unmet need for contraception and the social content of services. *Studies in Family Planning*, 26(2), 57–75.
- Bongaarts, J., & Casterline, J. B. (2018). From fertility preferences to reproductive outcomes in the developing world. *Population and Development Review*, 44(4), 793–809.
- Bongaarts, J., Cleland, J., Townsend, J., Bertrand, J., & Das Gupta, M. (2012). *Family planning programs for the 21st century: Rationale and design*. Population Council.
- Bongaarts, J., & Hardee, K. (2017). The role of public-sector family planning programs in meeting the demand for contraception in sub-Saharan Africa. *International Perspectives on Sexual and Reproductive Health*, 43(2), 41–50.
- Bongaarts, J., & Hardee, K. (2019). Trends in contraceptive prevalence in sub-Saharan Africa: The roles of family planning programs and education. *African Journal of Reproductive Health*, 23(3), 96–105.
- Bongaarts, J., & O'Neill, B. (2018). Global warming policy: Is population left out in the cold? *Science*, 361(6403), 650–652.
- Bongaarts, J., & Sinding, S. (2009). A response to critics of family planning programs. *International Perspectives on Sexual and Reproductive Health*, 35(1), 39–44.
- Bongaarts, J., & Watkins, S. C. (1996). Social interactions and contemporary fertility transitions. *Population and Development Review*, 22(4), 639–682.

- Bourguignon, F., & Bussolo, M. (2013). Income distribution in computable general equilibrium modeling. In P. Dixon & D. Jorgenson (Eds.), *Handbook of computable general equilibrium modeling* (pp. 1383–1437). Elsevier.
- Bryant, J. (2007). Theories of fertility decline and the evidence from development indicators. *Population and Development Review*, 33(1), 101–127.
- Bussolo, M., de Hoyos, R., & Medvedev, D. (2010). Economic growth and income distribution: Linking macro-economic models with household survey data at the global level. *International Journal of Microsimulation*, 3(1), 92–102.
- Caldwell, J. (1980). Mass education as a determinant of the timing of fertility decline. *Population and Development Review*, 6(2), 225–255.
- Caldwell, J. (2007). *Demographic transition theory*. Springer.
- Canning, D., Raja, S., & Yazbeck, A. (2015). *Africa's demographic transition: Dividend or disaster?* World Bank Group.
- Casterline, J. B. (2001). Diffusion processes and fertility transition: Introduction. In J. B. Casterline (Ed.), *Diffusion processes and fertility transition: Selected perspectives* (Committee on Population, Division of Behavioral and Social Sciences and Education, National Research Council) (pp. 1–77). National Academy Press.
- Casterline, J. B., Perez, A., & Biddlecom, A. (1997). Factors underlying unmet need for family planning in the Philippines. *Studies in Family Planning*, 28(3), 173–191.
- Casterline, J. B., Sathar, Z., & ul Haque, M. (2001). Obstacles to contraceptive use in Pakistan: A study in Punjab. *Studies in Family Planning*, 32(2), 95–110.
- Casterline, J. B., & Sinding, S. (2000). Unmet need for family planning in developing countries and implications for population policy. *Population and Development Review*, 26(4), 691–723.
- Chesnais, J. (1990). Demographic transition patterns and their impact on the age structure. *Population and Development Review*, 16(2), 327–336.
- Chesnais, J. (1993). *The demographic transition stages, patterns, and economic implications* (Translated from the French by E. Kreager & P. Kreager). Clarendon Press.
- Cleland, J. (1985). Marital fertility decline in developing countries: Theories and evidence. In J. Cleland & J. Hobcraft (Eds.), *Reproductive change in developing countries* (pp. 223–252). Oxford University Press.
- Cleland, J. (1994). Different pathways to demographic transition. In F. Graham-Smith (Ed.), *Population: The complex reality: A report of the population summit of the World's scientific academies* (pp. 229–247). Royal Society & Golden, CO: North American Press.
- Cleland, J. (2001a). Potatoes and pills: An overview of innovation-diffusion contributions to explanations of fertility decline. In J. B. Casterline (Ed.), *Diffusion processes and fertility transition: Selected perspectives* (pp. 39–65). National Academy Press.
- Cleland, J. (2001b). The effects of improved survival on fertility: A reassessment. In R. A. Bulatao & J. B. Casterline (Eds.), *Global Fertility Transition. Population and Development Review*, 27(Suppl), 60–92.
- Cleland, J. (2009). Education and future fertility trends, with special reference to mid-transitional countries. In *Completing the fertility transition* (United Nations population bulletin, special issue nos. 48/49: 2002) (pp. 183–194).
- Cleland, J. (this volume). Chapter 27: The contraceptive revolution. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Cleland, J., Bernstein, S., Ezeh, A., Faundes, A., Glasier, A., & Innis, J. (2006). Family planning: The unfinished agenda. *The Lancet*, 368(9549), 1810–1827.
- Cleland, J., & Lush, L. (1997). Population and policies in Bangladesh, Pakistan. *Forum for Applied Research and Public Policy*, 12, 46–50.
- Cleland, J., Phillips, J., Amin, S., & Kamal, G. (1994). *The determinants of reproductive change in Bangladesh: Success in a challenging environment*. World Bank Group.
- Cleland, J., & Wilson, C. (1987). Demand theories of the fertility decline: An iconoclastic view. *Population Studies*, 41(1), 5–30.
- Coale, A. J. (1973). The demographic transition. In *Proceedings of the international population conference* (Vol. 69). International Union for the Scientific Study of Population.
- Coale, A. J., & Hoover, E. (1958). *Population growth and economic development in low-income countries: A case study of India's prospects*. Princeton University Press.
- Coale, A. J., & Watkins, S. C. (Eds.). (1986). *The decline of fertility in Europe*. Princeton University Press.
- Cochrane, S. (1979). *Fertility and education: What do we really know?* Johns Hopkins University Press.
- Connelly, M. (2008). *Fatal misconception: The struggle to control world population*. Belknap Press of Harvard University Press.
- Cruz, M., & Ahmed, S. A. (2016). *On the impact of demographic change on savings, growth, and poverty* (World Bank policy research working paper 7805). World Bank Group.
- Cutler, D., Deaton, A., & Lleras-Muney, A. (2006). The determinants of mortality. *Journal of Economic Perspectives*, 20(3), 97–120.
- Darroch, J., et al. (2017). *Adding it up: Investing in contraception and maternal and newborn health, 2017—Supplementary tables*. Guttmacher Institute. Available at: [www.guttmacher.org/fact-sheet/adding-it-up-contraception-mnh-2017](http://www.guttmacher.org/fact-sheet/adding-it-up-contraception-mnh-2017)
- Davis, K. (1945). The world demographic transition. *The Annals of the American Academy of Political and Social Science*, 237, 1–11.

- Debbuur, C., Phillips, J., Jackson, E., Nazzar, A., Ngom, P., & Binka, F. (2002). The impact of the Navrongo Project on contraceptive knowledge and use, reproductive preferences, and fertility. *Studies in Family Planning*, 33(2), 141–164.
- Diamond, I., Newby, M., & Varle, S. (1999). Female education and fertility: Examining the links. In C. Bledsoe, J. B. Casterline, J. Johnson-Kuhn, & J. Haaga (Eds.), *Critical perspectives on schooling and fertility in the developing world* (Committee on Population, Commission on Behavioral and Social Sciences and Education, National Research Council) (pp. 23–48). National Academy Press.
- Donaldson, P. (1990). *Nature against us: The United States and the world population crisis, 1965–1980*. University of North Carolina Press.
- Donaldson, P., & Tsui, A. O. (1990). The international family planning movement. *Population Bulletin*, 45(3).
- Easterlin, R. (1975). An economic framework for fertility analysis. *Studies in Family Planning*, 6(3), 54–63.
- Easterlin, R. (1978). The economics and sociology of fertility: A synthesis. In C. Tilly (Ed.), *Historical studies of changing fertility* (pp. 57–113). Princeton University Press.
- Easterlin, R., & Crimmins, E. (1985). *The fertility revolution: A supply–demand analysis*. University of Chicago Press.
- Eastwood, R., & Lipton, M. (2011). Demographic transition in sub-Saharan Africa: How big will the economic dividend be? *Population Studies*, 65(1), 9–35.
- Ehrlich, P. (1968). *The population bomb*. Sierra Club Ballantine Book.
- El-Zanaty, F., Way, A., Kishor, S., & Casterline, J. B. (1999). *Egypt in-depth study on the reasons for non-use of family planning*. National Population Council.
- Gaylor, O. (2005). The demographic transition and the emergence of sustained economic growth. *Journal of the European Economic Association*, 3(2–3), 494–504.
- Günther, I., & Harttgen, K. (2016). Desired fertility and number of children born across time and space. *Demography*, 53(1), 55–83.
- Hadden, K., & London, B. (1996). Educating girls in the third world. *International Journal of Comparative Sociology*, 37(1–2), 31–46.
- Harkavy, O. (1995). *Curbing population growth: An insider's perspective on the population movement*. Plenum Press.
- Hasan, R., Moucheraud, H., Samaha, S., Troiano, S., Ahmed, A., Osorio-Rodarte, I., Suzuki, E., Sexton, M., Pradhan, E., Madhavan, S., & Bou-Habib, C. (2019). *Demographic dividend in DRC: Catalyzing economic growth through demographic opportunities*. World Bank Group (mimeo).
- Hauser, P., & Duncan, O. (1959). *The study of population. An inventory and appraisal*. University of Chicago Press.
- Headey, D., & Hodge, A. (2009). The effect of population growth on economic growth: A meta-regression analysis of the macroeconomic literature. *Population and Development Review*, 35(2), 221–248.
- Higgins, M., & Williamson, J. (1997). Age structure dynamics in Asia and dependence on foreign capital. *Population and Development Review*, 23(2), 261–293.
- Hornik, R., & McAnany, E. (2001). Mass media and fertility change. In J. B. Casterline (Ed.), *Diffusion processes and fertility transition: Selected perspectives* (pp. 208–239). National Academy Press.
- Human Mortality Database. (2019). Berkeley, CA: University of California & Rostock, DE: Max Planck Institute for Demographic Research. Available at: [www.mortality.org](http://www.mortality.org) or [www.humanmortality.de](http://www.humanmortality.de)
- ICF International. (2019). *The DHS Program STATcompiler*. Available at: <https://www.statcompiler.com>
- Jejeebhoy, S. (1995). *Women's education, autonomy, and reproductive behaviour: Experience from developing countries*. Clarendon Press.
- Karra, M., Canning, D., & Wilde, J. (2017). The effect of fertility decline on economic growth in Africa: A macrosimulation model. In J. B. Casterline & J. Bongaarts (Eds.), *Fertility Transition in sub-Saharan Africa*. *Population and Development Review*, 43(Suppl), 237–263.
- Kelley, A. C. (2001). The population debate in historical perspective: Revisionism revised. In N. Birdsall, A. C. Kelley, & S. Sinding (Eds.), *Population matters: Demographic change, economic growth, and poverty in the developing world* (pp. 24–54). Oxford University Press.
- Kelley, A. C., & Schmidt, R. M. (1995). Aggregate population and economic growth correlations: The role of the components of demographic change. *Demography*, 32(4), 543–555.
- Kelley, A. C., & Schmidt, R. M. (2001). Economic and demographic change: A synthesis of models, findings, and perspectives. In N. Birdsall, A. C. Kelley, & S. Sinding (Eds.), *Population matters: Demographic change, economic growth, and poverty in the developing world* (pp. 67–105). Oxford University Press.
- Kelley, A. C., & Schmidt, R. M. (2005). Evolution of recent economic-demographic modeling: A synthesis. *Journal of Population Economics*, 18(2), 275–300.
- Kelley, A. C., & Schmidt, R. M. (2007). A century of demographic change and economic growth: The Asian experience in regional and temporal perspective. In A. Mason & M. Yamaguchi (Eds.), *Population change, labor markets and sustainable growth: Towards a new economic paradigm* (pp. 39–74). Elsevier.
- Kinugasa, T., & Mason, A. (2007). Why countries become wealthy: The effects of adult longevity on saving. *World Development*, 35(1), 1–23.
- Kirk, D. (1996). Demographic transition theory. *Population Studies*, 50(3), 361–387.
- Knodel, J., & van de Walle, E. (1979). Lessons from the past: Policy implications of historical fertility

- studies. *Population and Development Review*, 5(2), 217–245.
- Kohler, H. (2001). *Fertility and social interactions: An economic perspective*. Oxford University Press.
- Kohler, H. P., & Behrman, J. (2014). *Benefits and costs of the population and demography targets for the post-2015 development agenda post-2015 consensus* (Working paper October 2014). The Copenhagen Consensus Center. Available at: [https://www.copenhagenconsensus.com/sites/default/files/population\\_assessment\\_-\\_kohler\\_behrman.pdf](https://www.copenhagenconsensus.com/sites/default/files/population_assessment_-_kohler_behrman.pdf)
- Kravdal, O. (2002). Education and fertility in sub-Saharan Africa: Individual and community effects. *Demography*, 39(2), 233–250.
- Kuang, B., & Brodsky, I. (2016). Global trends in family planning programs, 1999–2014. *International Perspectives on Sexual and Reproductive Health*, 42(1), 33–44.
- Kuznets, S. (1967). Population and economic growth. *Proceedings of the American Philosophical Society*, 111(3), 170–193.
- Lam, D. (2011). How the world survived the population bomb: Lessons from 50 years of extraordinary demographic history. *Demography*, 48(4), 1231–1262.
- Landry, A. (1934). *La Révolution Démographique*. Sirey.
- Lee, K., Lush, L., Walt, G., & Cleland, J. (1998). Family planning policies and programmes in eight low-income countries: A comparative policy analysis. *Social Science in Medicine*, 47(7), 949–959.
- Lee, R. D., & Bulatao, R. A. (1983). The demand for children: A critical essay. In R. A. Bulatao & R. D. Lee (Eds.), *Determinants of fertility in developing countries: A summary of knowledge* (pp. 233–287). Academic.
- Lee, R. D., & Mason, A. (2006). What is the demographic dividend? *Finance and Development*, 43(3), 16–17.
- Livi-Bacci, M. (1992). *A concise history of world population*. Blackwell Publishers.
- Lloyd, C. (2003). Education. In P. Demeny & G. McNicoll (Eds.), *Encyclopedia of population* (pp. 278–283). Macmillan.
- Lutz, W., & Skirbekk, V. (2014). How education drives demography and knowledge informs projections. In W. Lutz, W. P. Butz, & S. KC (Eds.), *World population and human capital in the twenty-first century* (pp. 14–38). Oxford University Press.
- Mason, A., & Kinugasa, T. (2008). East Asian economic development: Two demographic dividends. *Journal of Asian Economics*, 19(5), 389–399.
- Mauldin, W., & Ross, J. (1991). Family planning programs: Efforts and results, 1982–89. *Studies in Family Planning*, 22(6), 350–367.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- Meadows, D., Meadows, D., Randers, J., & Behrens, W., III. (1972). *The limits to growth*. Universe Books.
- Miller, G., & Singer Babiarz, K. (2016). Family planning program effects: Evidence from microdata. *Population and Development Review*, 42(1), 7–26.
- Montgomery, M. R., & Casterline, J. B. (1993). The diffusion of fertility control in Taiwan: Evidence from pooled cross-section time-series models. *Population Studies*, 47(3), 457–479.
- Montgomery, M. R., & Casterline, J. B. (1996). Social learning, social influence, and new models of fertility. In J. B. Casterline, R. D. Lee, & K. A. Foote (Eds.), *Fertility in the United States: New patterns, new theories*. *Population and Development Review*, 22(Suppl), 151–175.
- Moreland, R. S. (this volume). Chapter 22: Population policy models. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Mosher, S. (2008). *Population control—Real costs, illusory benefits*. Transaction Publishers.
- Murtin, F. (2013). Long-term determinants of the demographic transition, 1870–2000. *The Review of Economics and Statistics*, 95(2), 617–631.
- NAS. (1971). *Rapid population growth: Consequences and policy implications*. Johns Hopkins Press for the National Academies of Sciences.
- NAS. (1986). *Population growth and economic development*. National Academy of Sciences.
- Notestein, F. (1945). Population: The long view. In T. Schultz (Ed.), *Food for the world* (pp. 36–57). University of Chicago Press.
- NRC. (1997). *Reproductive health in developing countries: Expanding dimensions, building solutions*. National Research Council, The National Academies Press.
- Phillips, J., Stinson, W., Bhatia, S., Rahman, M., & Chakraborty, J. (1982). The demographic impact of the Family Planning—Health Services Project in Matlab, Bangladesh. *Studies in Family Planning*, 13(5), 131–140.
- Pritchett, L. (1994). Desired fertility and the impact of population policies. *Population and Development Review*, 20(1), 1–55.
- Retherford, R., & Palmore, J. (1983). Diffusion processes affecting fertility regulation. In R. A. Bulatao & R. D. Lee (Eds.), *Determinants of fertility in developing countries* (Vol. 2, pp. 295–339). Academic.
- Riley, J. (2001). *Rising life expectancy: A global history*. Cambridge University Press.
- Robinson, W., & Ross, J. (2007). Family planning: The quiet revolution. In W. Robinson & J. Ross (Eds.), *The global family planning revolution: Three decades of population policies and programs* (pp. 421–449). World Bank Group.
- Rochat, R., Kramer, D., Seanayake, P., & Howell, C. (1980). Induced abortion and health problems in developing countries. *The Lancet*, 2(8192), 484.
- Rogers, E. (1973). *Communication strategies for family planning*. Free Press.
- Rogers, E. (2003). *Diffusion of innovations*. Free Press.
- Ross, J., & Smith, E. (2011). Trends in national family planning programs, 1999, 2004 and 2009. *International Perspectives on Sexual and Reproductive Health*, 37(3), 125–133.

- Schultz, P. (1976). Determinants of fertility: A microeconomic model of choice. In A. J. Coale (Ed.), *Economic factors in population growth* (pp. 89–120). Halstead Press.
- Schultz, P. (1994). Human capital, family planning and their effects on population growth. *American Economic Review*, 84(2), 255–260.
- Schultz, P. (2002). Fertility transition: Economic explanations. In N. Smelser & P. Baltes (Eds.), *Pergamon international Encyclopedia of the social and behavioral sciences* (pp. 5578–5584). Oxford University Press.
- Sen, G., Germain, A., & Chen, L. (1994). *Population policies reconsidered: Health, empowerment and rights*. Harvard University Press.
- Simon, J. (1981). *The ultimate resource*. Princeton University Press.
- Sinding, S. (2007). Overview and perspective. In W. Robinson & J. Ross (Eds.), *The global family planning revolution: Three decades of population policies and programs* (pp. 1–12). World Bank Group.
- Singh, S., Darroch, J., & Ashford, L. (2014). *Adding it up: The costs and benefits of investing in sexual and reproductive health*. Guttmacher Institute.
- Summers, L. (1992a). Investing in all the people. *The Pakistan Development Review*, 31(4), 367–404.
- Summers, L. (1992b). The most influential investment. *Scientific American*, (August), 132.
- Thompson, W. (1929). Population. *American Journal of Sociology*, 34(6), 959–975.
- Tietze, C. (1981). *Induced abortion: A world review*. Population Council.
- Turbat, V. (this volume). Chapter 19: Policies needed to capture demographic dividends. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- United Nations. (1954). Framework for future population estimates, 1950–1980, by world regions. In *Proceedings of the world population conference* (pp. 283–328). United Nations.
- United Nations. (1958). *The future growth of world population* (Population studies 28, ST/SON series N28). United Nations.
- United Nations. (2015). *The millennium development goals report 2015*. United Nations.
- United Nations. (2017). *The sustainable development goals report*. United Nations.
- UNDP. (2016). *Human development report 2016: Human development for everyone*. United Nations Development Program.
- United Nations Population Division. (1999). *The world at six billion* (Working paper no. ESA/P/WP.154). United Nations.
- United Nations Population Division. (2015). *World population prospects: The 2015 revision*. United Nations.
- United Nations Population Division. (2017). *World contraceptive use 2017*. United Nations.
- United Nations Population Division. (2018). *Estimates and projections of family planning indicators 2018*. United Nations.
- United Nations Population Division. (2019). *World population prospects: The 2019 revision*. United Nations.
- Watkins, S. C. (1986). Conclusions. In A. J. Coale & S. Watkins (Eds.), *The decline of fertility in Europe* (pp. 420–449). Princeton University Press.
- Watkins, S. C. (1987). The fertility transition: Europe and the third world compared. *Sociological Forum*, 2(4), 645–673.
- Westoff, C., & Bankole, A. (1995). Unmet need: 1990–1994. In *Demographic and health surveys comparative studies 16*. Macro International.
- Willis, R. (1974). Economic theory of fertility behavior. In T. Schultz (Ed.), *Economics of the family: Marriage, children and human capital* (pp. 25–75). University of Chicago Press.
- Wittgenstein Centre for Demography and Global Human Capital. (2015). *Wittgenstein centre data explorer version 1.2*. Available at: <http://www.wittgensteincentre.org/dataexplorer>.
- Wolpin, K. (1998). The impact of infant and child mortality risk on fertility. In M. R. Montgomery & B. Cohen (Eds.), *From death to birth: Mortality decline and reproductive change* (pp. 74–111). The National Academies Press.
- World Bank. (2015a). *Global monitoring report 2015/2016: Development goals in an era of demographic change*. World Bank Group.
- World Bank. (2015b). *South Africa economic update: Jobs and South Africa's changing demographics*. World Bank Group.
- World Bank. (2017). *World development indicators*. World Bank Group. Available at: <https://data.worldbank.org/indicator>





# Population Dynamics and the Environment: The Demo-climatic Transition

# 6

Alisson Flávio Barbieri and William K. Pan

## Introduction

The link between demography and climate has been reported conspicuously throughout history. The rise and fall of civilizations have been connected with drastic regional and/or global climate variations, the latter being a key element defining the supply of natural and agricultural resources and urban life (Rodriguez & Bonilla, 2007). More recently, issues such as consumption and production patterns and global environmental changes have been discussed as both a cause and consequence of population dynamics and characteristics. Thus, population issues have had an intrinsic association with environmental dynamics, although the demographic dimensions of this equation have often been overshadowed by the specific concerns raised by the protection of the environment itself, including climate change. Recent environmental trends have shown the cost of the lack of effective policies to mitigate factors such as biodiversity loss and massive greenhouse gas emissions, as well as to effectively manage of

natural disasters. In addition, dramatic population changes are occurring, related to its changing composition (population aging, household structure, increasing and complex mobility patterns, and morbidity and mortality trends). Moreover, rapid urbanization is taking place around the world and contributes further to the increasing environmental footprint (see Chap. 18: *Population and Health Policies in Urban Areas* of this *Handbook* [Vučković & Adams, [this volume](#)]).

This chapter begins by examining how certain demographic changes – which we define as *population transitions* – interact with environmental factors. As transition theories were developed in the 1800s and 1900s, prior to the emergence and recognition of Global Environmental Change (GEC), the relevance of assumptions intrinsic to demographic, epidemiological, and mobility transitions being applied to a world where GEC is a dominant force affecting human behavior is put to question. While demography, as a discipline, has incorporated discussions about environmental dimensions and how they interact with the various population patterns and trends, we believe that it has only just begun the analysis of the consequences of GEC on future population transitions. This may include, for example, considering the emerging issues of environmental migrants and morbidity and mortality trends associated with global environmental changes and their influence on population policies.

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We then discuss four major global environmental changes – climate change, hydrological cycles, coastal developments and oceans, and air quality – that will shape the world in the coming decades, and how they will interact with population transitions to define a new, unprecedented way in which population and environment interact. We name this future trend the *Demo-climatic Transition*. Since the 1992 Earth Summit in Rio de Janeiro, there has been a growing recognition of the intimate relationship between global environmental change and demographic change. Human population characteristics – mortality, morbidity, fertility, migration, age and sex composition, residential location, connectivity, etc. – are both primary underlying factors and direct recipients of negative or positive effects caused by changing climate, air quality, freshwater availability, coastal development, ocean quality, biodiversity, and land use/land cover. However, when we examine the theoretical underpinning of the demographic transition (and other population transitions as well), there is virtually no discussion to how GEC may alter the trajectory of countries or regions moving through the demographic transition.

Finally, we discuss in the concluding section the challenges that population policies and planning may present in the next decades in order to address the issues posed by the *Demo-climatic Transition*.

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## Population Transitions and Environmental Changes

Several theoretical frameworks assume that population transitions unfold when a society progresses along the stages of modernization—when, *strictu sensu*, the process of growing urbanization associates with the transformation of an agrarian society to one where services and industries represent the core of the productive sector. Each modernization stage associates with structural transformations in terms of demographic, epidemiologic, and spatial features, which *per se* associate with specific ways that modify the environment (Barbieri et al., 2015).

We unpack transition frameworks in how they evaluate the diffusion of demographic and socioeconomic processes across time and space. Specifically, we examine structural changes of population in terms of: (i) natural growth, given by the dynamics of mortality and fertility (*demographic transition*), traced back to Landry (1909) and Thompson in 1929 and then Notestein (1945); (ii) mortality and morbidity levels (*epidemiological transition*), by Omran (1971); (iii) mobility patterns (*mobility transition*) by Zelinsky (1971), and as an integral component of these three, and evolving from these three; and (iv) the population (re)distribution and spatial dimension of the transitions (*urban transition*), an expression coined by Moriconi-Ebrard (1993).

There are several criticisms about transition frameworks in the evaluation of the diffusion of demographic and socioeconomic processes across time and space given, for example, their universalistic and ahistorical character that dismisses regional, historical, and contextual factors and processes. In particular, the Demographic Transition Theory is based on observational data primarily from Western Europe and the U.S. during the 1800s and early 1900s, and pose some challenges when applied to the contemporary context involving less developed countries. Refinements of the theory have been introduced in the past half century, particularly the impact of migration and human capital investments, disentangling proximate and distal determinants of fertility decline, and the importance of globalization and trade to shape demands for skill and unskilled labor in specific countries, resulting in enhanced/sustained transition or a transition delay.

Nonetheless, population transition frameworks provide a useful way to explore linkages between population and development processes and consequent theoretical development (Skeldon, 2012). Population transitions over time affect population size, composition, and spatial distribution that cause, in a recursive way, structural changes in the societal conditions that created them. Furthermore, and as suggested by Coleman (2006: 419), a population in transition must meet the conditions of “*be fast in historical terms, without precedent*,

*irreversible, and above all, of substantial social, cultural and political significance.*” These structural changes involve, as a critical dimension, environmental changes.

In this sense, while demography is still addressing the implications of GEC on population dynamics, we assume that until the end of the twentieth century demographic thinking about population changes has co-evolved with environmental changes, to address the recursive relationship between them. Pebley (1998), based upon Ruttan (1993), suggests three “waves” or moments of environmental concerns in the twentieth century: (i) the consequences of population size and growth on the environment (the *neo-Malthusian perspective*); (ii) the consequences of population consumption and production patterns; and (iii) the consequences of population dynamics, production, and consumption on global environmental changes. These waves are contingent on the contextual and structural conditions of the time and are affected by population dynamics (mortality, fertility, and migration).

Figure 6.1 synthesizes the main features of population transitions and the environmental waves, using as temporal landmarks the four stages of the demographic transition. This is followed by our hypothesis about a Democlimatic Transition phase. In the pages below, we explore the connections between each of these transitions and stages and the major environmental questions identified by each of the three waves, and the major policy issues they raise. We explore the features of the Democlimatic Transition in section: “*Global Environmental Changes and Demographic Transitions: The Democlimatic Transition*”.

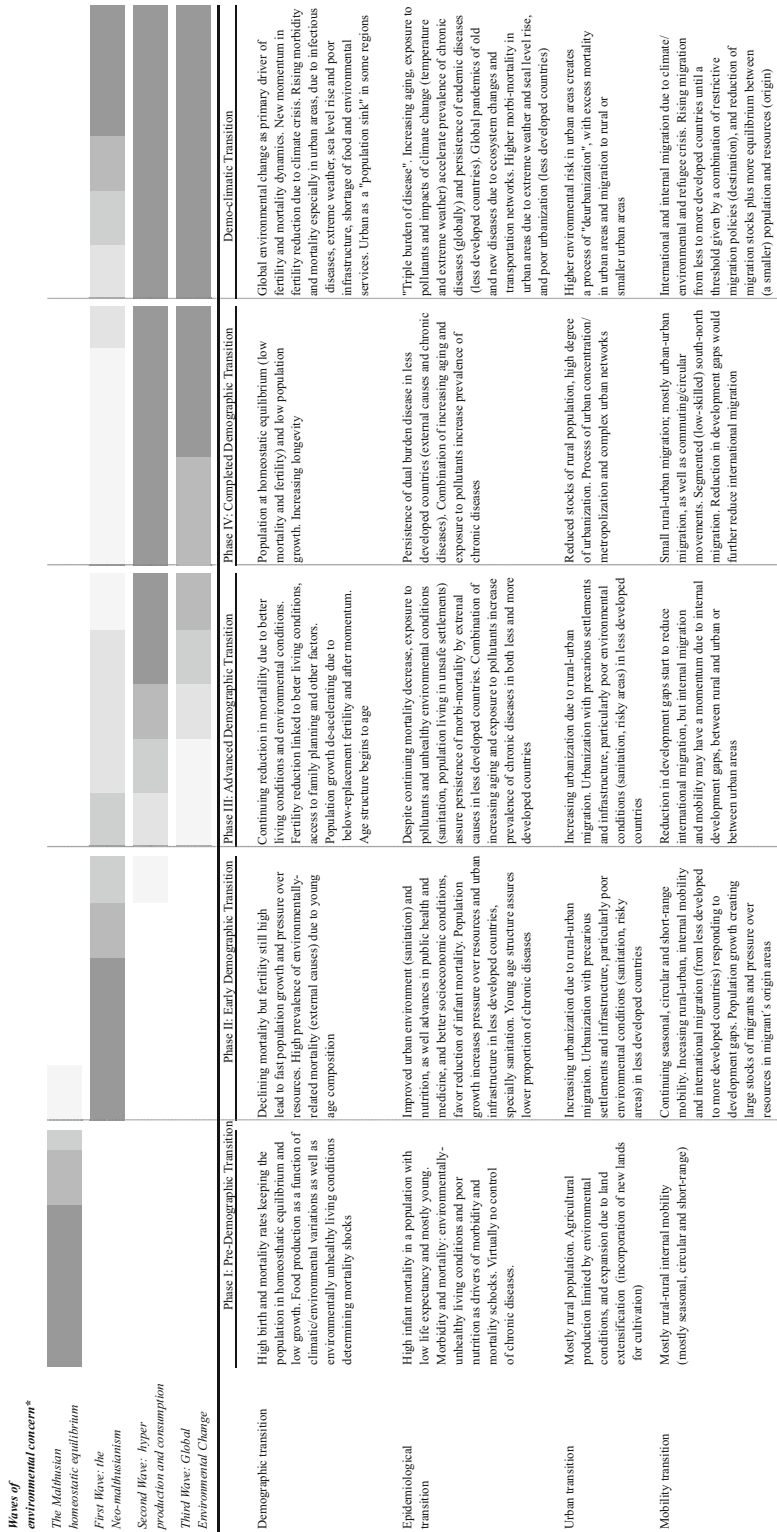
## Population Size and Growth

Demographic science was born with the relationship between population and the environment as one of its cornerstones. Albeit some authors trace the beginning of the discipline to early thinkers such as Giovanni Botero (Bongarts, 2003), Thomas Robert Malthus is usually seen as its

pioneer. In *An Essay on the Principle of Population* (1798), Malthus examined the impacts of environmental constraints on agricultural production and consequently on fertility and mortality in the pre-capitalist Europe. He concludes that greater agricultural output relative to population size increases living standards in a way that motivates fertility, while smaller agricultural output relative to population size leads to fertility reduction through “preventive checks” related to deliberate birth control as well as increasing mortality rates through “positive checks” related to famine and epidemics.

While the mechanisms linking natural population growth and agricultural outputs may be seen as an anachronism in the contemporary world, it is still an intuitive notion that excessive population growth (noting that the term “excessive” needs careful qualification considering, for example, a society’s carrying capacity) leads to misery and this view is still pervasive nowadays. This is particularly true in the context of developing countries and has fostered, over the twentieth century, a policy agenda centered around family planning and birth control in order to avoid the Malthusian scenario of positive checks, environmental depletion, and constraints on economic development.

Thus, the debate surrounding Malthus’ ideas prompted, particularly since the second half of the twentieth century, a scientific debate that rapidly dominated population policies at the time. Pebley (1998), based upon Ruttan (1993), discusses how Malthus’ seminal ideas influenced the first of the three great “waves” or moments of environmental concerns. Beginning in the 1940s and 1950s, the “neo-Malthusians” (see, e.g., Coale & Hoover, 1958; Ehrlich & Holdren, 1971; Meadows et al., 1972) assumed that population growth undermines efforts for sustainable economic growth in the long run in less developed countries. These ideas are consistent with the major macroeconomic policies at the time. Following authors like Coale and Hoover (1958), economic growth is possible only with increasing savings and investments per capita, while population growth is a negative factor acting against the elevation of the proportion of capital to labor



**Fig. 6.1** Waves of environmental concerns and population transitions  
 \* Most intense gray colors indicate that environmental concerns in a given wave was more prevalent in a given transition phase. (Source: Authors' elaboration)

since it diverts savings from investments in capital formation to the consumption of a large younger population, given high fertility rates, population *momentum*, and rapidly falling mortality. There would be, thus, an unsustainable relationship between productive investments in capital formation and the consumption demands of a society with a high young dependency ratio (the ratio between the population below 15 years of age and the productive population, those between 15 and 64 years old).

The First Wave unfolds as most of the less developed world faces the initial stages of the demographic transition, entering a period of fast and unprecedented population growth. The literature depicts the demographic transition in terms of the implications of modernization stages (Rostow, 1959) and their changes for material and immaterial aspirations, values and ideologies that affect vital events – mortality and fertility – and consequently, natural population growth, size, and age structure. It unfolds in phases, as an agrarian society evolves from low population growth characterized by homeostatic equilibrium (with high mortality and fertility) to a modern, post-industrial society characterized again by low growth and homeostatic equilibrium (however, with very low fertility and mortality levels). The demographic transition *per se*, with rapid population growth occurring between these two extremes of homeostatic equilibrium, arises when mortality decreases at a faster pace than fertility (Lee, 2003).

Besides population growth, two remarkable features of the demographic transition are the concentration of the population in urban areas and population aging. The final stage of the demographic transition implies below-replacement fertility linked to a predominantly older and urban population (Lee, 2003). Urban concentration and aging imply important challenges for policymakers especially in less developed countries, for example in terms of adaptation of urban infrastructure to higher demand (e.g., sanitation and appropriate housing in informal settlements) and the adaptation of health and pension systems to an older population.

The Malthusian and neo-Malthusian perspectives influencing the First Wave created, according to Pebley's (1998) discussion of an earlier article by Hodgson (1988), an "orthodoxy" in demographic thinking that shaped population policies after World War II: "*rapid population growth could retard development and exhaust natural resources, and [so] fertility control programs were necessary to stem the tide*" (Pebley, 1998: 378–379). This orthodoxy also contributed to narrow the scientific and policy agenda on population and the environment as the need for family planning programs to reduce fertility levels in less developed countries took preeminence. Neo-Malthusian policy prescriptions suggest a challenge to achieve the necessary balance between development goals and population growth control, since the latter is necessary to achieve the former. While some national states during the First Wave posed resistance towards the implementation of family planning programs due to pervasive non-secularization, cultural norms, and values, family planning programs promoted by international organizations as well as pressure from more developed countries achieved a diffusion effect globally. Even in a significant part of the less developed world, population policy "*became essentially synonymous with family planning programs*" (Demeny, 2003: 13).

Criticisms of this narrow view began to be voiced more consistently from the 1960s with authors such as Boserup (1965) and Simon (1981). According to them, moderate population growth may be a benign process if it motivates innovative responses in terms of agricultural improvements, technology, and more efficient use of resources, including the role of markets in the regulation and substitution of scarce resources. Contrary to the Malthusian perspective and based upon evidence from the less developed world, Ester Boserup (1965) showed that higher population density may stimulate social reorganization of agricultural production and thus motivate technical improvements and higher per capita food production. Technology may be, thus, an endogenously increasing input, contrary to the Malthusian assumption of virtually fixed technology, with increases in food production

determined mainly by the incorporation of marginal lands into production.

While both Malthus and Boserup effectively included population as a dynamic factor affecting food production, the first considered population as endogenous to economic growth as mentioned above, while Boserup demonstrated the reverse causal relationship—population growth and density may induce technology changes and, consequently, increase economic growth (Lee, 1984).

### Hyper-consumption and Production

Criticisms of the neo-Malthusian view on population and resources helped to shape important assumptions of the Second Wave: the primacy of factors related to norms and values that define *culture*, the role of institutions (such as markets and the government) and technology that mediates between consumption and production patterns, and, consequently, the relationship between population and environmental dynamics. The context of this turn from the first to the Second Wave is the process of (re)-industrialization and full recovery of the more developed world after World War II based on new production technologies. The main foci of concerns on the population-environment relationship moved from the impacts of *population growth* on the environment to the impacts of new patterns of *consumption and production*, and the capacity of the environment to absorb the waste and by-products of modern technology, such as the use of pesticides, plastics and nuclear toxic wastes (see, e.g., Carson, 1962). Several authors since the 1960s have, while recognizing the potentially deleterious impact of rapid population growth on resources, questioned its sole, decisive role in terms of environmental impacts. McNicoll (1994), for example, discusses the role of institutions, culture, and the political context in the mediation of the effect of population growth on natural resources.

Studies on the role and consequences of environmental hazards, rather than simple demographic behavior, gained strength during the

Second Wave, setting the stage for a new understanding regarding social mobilization and policy action. For example, the “Environmental Justice Movement” gained momentum during this Second Wave, advocating for equal treatment and participation of all populations in development processes, including their design, implementation, law enforcement, and environmental legislation regardless of socioeconomic and demographic attributes such as age, gender, race, ethnicity, income, and educational level (Bullard, 1994; Pulido, 1996). The literature on Environmental Justice has investigated the asymmetric distribution of risks and impacts of large-scale development processes, as well as disasters and climate changes, particularly in relation to socioeconomically disadvantaged population sub-groups.

The Second Wave unfolded in a period when most of the less developed world had initiated the demographic transition and faced *both* processes of population growth and gradual changes in age composition. It also highlights the primacy of mediating factors – such as culture, technology, markets, and other institutions – that shape how consumption and production define the interaction between population and environmental dynamics (Hummel et al., 2013). The impact of high fertility on the environment, the main concern of neo-Malthusianism during the First Wave, is conditional on (or moderated by) the way such mediating factors are present or absent in a given society. This scenario defines a new momentum in morbidity and mortality patterns, particularly in less developed countries, where population aging increases the prevalence of chronic and degenerative diseases coexisting with infectious diseases typical of a younger, pre- and incipient-demographic transition population due to persisting poverty, inequality, poor urban infrastructure, and health services. In other words, the “dual health burden” implies that the advancement of the demographic transition has not been coupled with the necessary investments to reduce historical poverty, inequality, and a lack of access by a large share of the population to water and sanitation (Prata, 1992; Schramm et al., 2004),

not mimicking the historical experience of more developed countries. This incomplete epidemiological transition may represent an additional source of stress as the “collateral effects” of consumption and production patterns (e.g., radioactive and toxic contamination) as well as climate change come into play, since they work as a force that hold back the transition of a population still affected by infectious diseases (Barbieri et al., 2015). Vulnerability can increase even further as rural-urban migration, induced by climate-related effects on agropastoral areas, translates into the growth of shantytowns characterized by poor sanitation and poverty (Barbieri et al., 2015).

As for population growth in assessing the consequences of the demographic transition on the environment, changes in population structure and composition are equally important to define impacts on consumption and production patterns. Demographic composition and spatial distribution set the conditions for consumption patterns in the Second Wave, for example when consumption patterns are correlated to the age structure. Some studies have shown the impacts of aging structures as related to higher per capita consumption and carbon emissions, and requiring new mitigation strategies (Dyson, 2005; Zagheni, 2009, 2011; O’Neill et al., 2010). Few, however, address the challenging question of how a changing age structure and other features of demographic composition (e.g., urban and rural residence, household structure) may pose additional stress on the ability of a population to respond to environmental change, and more specifically, to climate change (Jiang & Hardee, 2011; McLeman, 2010). As discussed in Barbieri et al. (2015), high demographic dependency ratios (due to a relatively high proportion of both very young and very old age groups relative to working-age population) would be sensitive to climate change for different reasons, particularly in the context of less developed countries. Climate change is likely to affect more intensively places with a high young dependency ratio due to the need for consumption (Hedenus et al., 2014). Since temperature change is likely to affect agricultural areas more intensively, and these areas

have higher young dependency ratios, we would expect increased temperature-related vulnerability to arise in these places. Climate change is also likely to more intensively affect places with high old age dependency by means of increased need for healthcare, as the elderly are less prepared to deal with episodes of heat wave, temperature variation, and climate-related hazards, such as floods, droughts, and landslides (Hajat et al., 2014). Dependency ratio effects on vulnerability may also vary depending on the extent of social protection (Barbieri et al., 2015).

The discussion about the First and Second Waves shows that demographic transitions interact, in a recursive way, with environmental changes to redefine population vulnerability. Most of the Malthusian- and neo-Malthusian-oriented population and environment literature has focused on the effects of modernization on population growth. As for changes in *population level* (growth) in the first stages of the demographic transition, changes in fertility and mortality levels (at later stages) will imply structural changes in terms of *population composition* (for example, population aging). This change implies a redefinition of societal demands in terms of consumption and production and consequently the rearrangement of planning and policies. In particular, the older and richer populations produced by the progress of the demographic transition have much higher production and consumption per capita and thus much higher environmental impacts than populations at the beginning of the demographic transition. In this regard, the Second Wave (and the Third Wave, as discussed below) overcomes the “equalization”, in the First Wave, of population policies with family planning programs to control population growth (Demeny, 2003). Family planning, especially after the United Nations International Conference on Population and Development (ICPD) in Cairo, 1994, became increasingly not only a matter of population growth control, but a human rights issue especially concerning maternal health. This new perspective combined with policies increasingly articulating environmental and population issues to shape population policies in the Second and Third Waves.

## The Human Dimensions of Global Environmental Changes

The Third Wave defines the shift, from the 1980s, from a focus on local and regional environmental concerns typical of the First and Second Waves to global environmental changes, such as climate change, hydrological cycles, coastal developments and oceans, and air quality. As in the Second Wave, there is a central concern about the overexploitation of “public goods” (air, water, land) as well as consumption and production patterns, agricultural lands, and the role of mediating factors (multilateral political agreements and arrangements, culture, and technology). Since the 1980s, the remarkable distinction is the increasing connection between local, regional, and global environmental issues: scales are embedded, each one (re)shaping the other. In this way, it collapses concerns of previous waves into a global perspective – from local and regional causes and consequences of population dynamics to global causes and consequences – bringing the spotlight to the human dimensions of global environmental changes, particularly climate changes. For example, regional problems such as deforestation in the Amazon and consequent carbon emissions scale up to global problems such as global warming and this last phenomenon, in a recursive way, modifies climate conditions and the ecology of the Amazon as well as the globe, so that Amazon deforestation impacts Arctic warming, which affects air and ocean currents and thus the hydrology of the Amazon.

The Third Wave focuses on the causes and consequences of population pressures as mediated by production and consumption patterns over the so-called “public goods” (air, water, land) as well as natural resources (forests, biodiversity and ecosystem services, and biosphere integrity). It reinforces the primacy of factors such as global governance, cultural changes, and technological innovation to mediate the relationship between population and environmental dynamics. Furthermore, the Third Wave unfolds in a context of globalization with

unprecedented mobility, including those related to involuntary motivations (political, ethnic, environmental refugees, and the Diasporas) and rapid, precarious urbanization in less developed countries.

Modernization implicitly brings a process of labor reallocation from low-productivity (rural) to high-productivity (urban-based) sectors facilitated by the spread of more efficient communication and transportation systems, as well as labor allocation to infrastructure development (roads, dams, etc.). The deep transformation in rural and urban spaces is thus a major driver of increasing mobility and urbanization as development unfolds. In this regard, according to the Theory of Mobility Transition, Zelinsky (1971) suggests that the advancement of socioeconomic development will be related to an increasingly complex mobility pattern, fostering a more intense and complex process of urban occupation. The combination of a diversity of mobility forms in a single theoretical framework is one of the key contributions of Zelinsky to the migration literature (King et al., 2008). However, the consequences of these complex mobility strategies and patterns (particularly towards and between urban areas) as development processes unfold, and their consequences as an effective adaptive response to reduce vulnerability to climate changes, is still a debatable issue.

While some examples in the literature suggest the importance of distinguishing migration status as an adaptation mechanism, its impacts on vulnerability and adaptive capacity have not been sufficiently discussed in order to isolate the effects of other social, economic, and climate change processes (McLeman & Smit, 2006). For example, adaptive capacity demands heavy investments in adequate urban planning and infrastructure, such as housing quality, access to clean water and sanitation, and institutional arrangements. Thus, in a scenario of fast urbanization, the scale of risks to local, regional, and global environmental changes will be affected most decisively by the quality of, and accessibility to, urban infrastructure and services.



According to the World Bank,<sup>1</sup> the percentage of population living in urban areas is 55.3% in 2018 but with wide regional variations, for example, from 34% in South Asia and 40.2% in sub-Saharan Africa, to 75.7% in the European Union, around 80.6% in Latin America and the Caribbean and 82.2% in North America. Most of the future growth in the stock of urban population will occur in the less developed regions of the world, where the precarious infrastructure and services will probably increase, *ceteris paribus*, the vulnerability of urban populations to environmental hazards.

### **Collapsing the Waves in a Tsunami: How Population Transitions and Environmental Changes Set the Stage for Population Policies in the Next Decades**

The evolution of the waves of concern about the environment and their population connections as suggested by Pebley (1998) do not necessarily imply that different countries will evolve in such stylized way. As a matter of fact, distinct development stages and political and contextual factors may imply that specific population and environment questions may not be subject to policy intervention. The Brazilian case may illustrate this point (Barbieri, 2013). Neo-Malthusian concerns were absent from the population policy agenda, both during the First Wave as well as nowadays. In the first case, the Brazilian state, particularly during the Military Dictatorship (1964–1984), assumed that the country’s uneven spatial distribution and low population density (with most of the population concentrated in the South, Southeast, and Northeast regions) was a problem to be fixed through population redistribution policies, particularly towards the Amazon. This geopolitical agenda was also influenced by religious and conservative views, creating barriers to publicly available, widespread family planning initiatives and the diffusion of secular ideas regarding

reproductive choices by families. However, this policy was ineffective in balancing the population distribution in the country: 84.3% of the population is still living in the South, Southeast, and Northeast in 2010, against 90.7% in 1970, according to the Brazilian Census Bureau - IBGE.<sup>2</sup> On the other hand, the post-1964 occupation of the biomes of the Amazon (North) and Cerrado (Center-West) by both population and economic activities such as commercial agriculture, cattle ranching, and logging ironically created the great environmental problems in Brazil during the Third Wave. In fact, 44% of the carbon emissions in the country in 2018 are due to deforestation, mostly concentrated in the Amazon and Cerrado – the biomes of the lowest population densities that also host most of the cattle ranching, which itself is responsible for 25% of Brazil’s carbon emissions.<sup>3</sup>

Environmental concerns in the First and Second Waves are not limited in time and may indeed be pervasive in subsequent periods. In this sense, discussions on climate change may still be influenced by neo-Malthusian perspectives that put population growth as one of their key drivers. Curran and de Sherbinin (2004) suggest that the scientific and policy agenda on population has also been characterized by a “divide”, between a population-environment (neo-Malthusian-prone) set of policies in less developed countries vis-à-vis a consumption-environment agenda in more developed countries. On the other hand, it is unlikely that slowing population growth *per se* is enough to improve health resilience to climate changes given the unequal distribution of health resources and the additional resources required by an aging population (O’Neill et al., 2001). Furthermore, mediating factors since the Second Wave and more nuanced views about the recursive impacts of population on the environment contribute to lessen the weight of population

<sup>1</sup> The World Bank; see <https://data.worldbank.org/indicator/sp.urb.totl.in.zs>, accessed on April 14, 2020.

<sup>2</sup> Brazilian Census Bureau, IBGE; see <https://censo2010.ibge.gov.br/sinopse/index.php?dados=5&uf=00>, accessed on April 16, 2020.

<sup>3</sup> Sistema de Emissões de Gases de Efeito Estufa do Observatório do Clima; see <http://seeg.eco.br/>, accessed on April 15, 2020.

growth as well as some forms of composition (such as urbanization and household structure).

Overall, population issues have had little attention in the formulation of response strategies to climate change. While population was central to the policy agenda in the 1970s due to concerns about population growth stressing the environment, it has been neglected in climate change adaptation policies and in the formulation of response strategies, especially in issues related to family planning and reduced population growth, education, gender equity, age structure, and urban or rural distribution of population (O'Neill et al., 2001; Jiang & Hardee, 2011).

It is worth mentioning that population distribution and mobility, while largely absent from Malthusian concerns about population-environment effects, has gained increasing attention in the last few decades, mostly due to the growing impact of environmental changes. Discussions about population vulnerability to hazards as an attribute of both population and places (Cutter, 1996) gained momentum during the Second Wave and highlighted population displacement as an important “side-effect” of production and consumption patterns. More recently, population mobility has been increasingly discussed as a key societal concern linked to global environmental changes, such as the case of environmental refugees and place-specific vulnerability linked to climate changes or natural disasters. Zelensky (1971) discussed the relationship between societal changes, strictly speaking through the Rostow (1959) perspective of modernization, and population mobility, to conclude that mobility is a more sensitive demographic component to societal change, particularly economic and technological changes. We can extend this idea by assuming that in advanced societies where consumption and production accelerate the environmental problems of the Third Wave, mobility favored by dynamic labor markets, transport and communications systems are not only the key element to explain demographic dynamics, especially in a context of low fertility and low population growth. They are also decisive in terms of the environmental dynamics—both in terms of the generation of impacts (e.g.,

carbon emissions, solid waste) and defining the vulnerability of the most impoverished groups to the side effects of mobility *and* immobility in advanced societies. As an example, post-disaster analysis of the impacts of Katrina and Rita hurricanes in the Gulf Coast of the United States in 2005 shows that out-migration from the impacted area was associated with populations having a worse Social Vulnerability index (Myers et al., 2008).

Environmental change, including carrying capacity as the ability to provide quantitatively and qualitatively adequate sources of livelihoods for human populations in a given space and time, has been one of the key mechanisms engendering demographic change through population mobility (see, e.g., Black et al., 2011; Hummel et al., 2013; Hunter et al., 2015). Population mobility is *per se* a multi-faceted concept, which involves a person’s specific decision regarding a movement in terms of spatial range, time (or periodicity), and change of residency (Barbieri et al., 2019). Besides these criteria, mobility can be defined according to its motivation – a *voluntary* decision (e.g., strictly economically motivated) or *involuntary* (e.g., environmentally driven movement, such as the case of environmental refugees). Thus, the appropriate assessment of the nexus between mobility and environmental change requires the careful definition and analysis of the first regarding objective factors (time, space, and residency), subjective factors (voluntary, involuntary causes), as well as the specific socio-environmental characteristics of the context (e.g., a poor, drought-prone area). The concept connecting these three factors is *population vulnerability*, here defined, *strictu sensu* and according to the IPCC Third Assessment Report<sup>4</sup> (cited in Füssel, 2007), as “*the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation and to which a system is exposed, its sensitivity, and its adaptive*

<sup>4</sup> IPCC (International Panel on Climate Change). *Climate Change 2001, IPCC Third Assessment Report, Glossary.*

*capacity.*” It is implicit, in this definition, that vulnerability also refers to the lack of capacity of a given population to prevent, mitigate, or attenuate adverse consequences yielded by their exposure to hazards, and their capacity to respond to them (Barbieri et al., 2015; Cutter, 1996). Since the concept of “hazard” results from a combination of three attributes of the population – exposure, sensitivity, and adaptive capacity – it helps us to understand to what extent and conditions different types of mobility (or immobility) provide an effective adaptation mechanism to a population facing environmental constraints, especially those associated with GEC.

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## Global Environmental Changes and Demographic Transitions: The Demo-climatic Transition

In this section, we initially discuss four major GEC – climate change, hydrological cycles, coastal developments and oceans, and air quality – that will have dramatic impacts on mortality, fertility, and migration in the coming decades. Then, we propose a revision of population transition theories towards an integrated population-GEC framework, which we name here the *Demo-climatic Transition*.

### Global Environmental Changes

**Climate Change** Categorizing different types of GEC influencing transitions is complex. Climate change is an example. It is, by far, the most encompassing GEC occurring, which is rapidly altering environmental conditions to which humans respond directly and indirectly. Fundamentally, climate change relates to increases in average global temperatures. In the past, it was related to natural processes, such as volcanic activities and methane release from the ocean floor. On the other hand, “modern” climate change is related to anthropogenic activities since the first Industrial Revolution in 1750 (Robertson, 2014), which are responsible for the

emission of greenhouse gases, especially carbon dioxide and methane. Since the Second Wave, a new momentum in the emission of greenhouse gases has accelerated global warming. It is estimated that 55% of the carbon dioxide released by human activities into the atmosphere is absorbed by oceans and by plants and soils, and 45% stays in the atmosphere (Robertson, 2014).

Increases in global temperatures cause a cascading effect on water cycles, pathogen cycling that affects human, animal, and plant health, sea level rise, heat island effects in urban environments, and increased frequency of extreme events, among many other impacts. Altered water cycles are addressed later in the chapter. Pathogen cycling can be particularly problematic. Vector-borne and zoonotic diseases are among the most cited health issues affecting humans related to climate change. Nearly all research and modeling efforts have indicated an increased risk from diseases such as malaria, dengue, yellow fever, tick-borne illnesses, Chagas disease, and others. However, cycling of other pathogens such as molds, influenzas (swine, bird), and bacteria can significantly affect plant and animal survival (e.g., black sigatoka affecting global banana crops, aspergillus inhalation causing bird and human illnesses and death, brucellosis which causes complete loss of swine litters, etc.). While non-human impacts may seem muted, these diseases pose serious threats to food security. Sea level rise affects all coastal environments (addressed below in Coastal Development and Oceans), but urban heat islands are becoming particularly problematic as they combine the effects of climate change with urban deforestation. These combined factors result in many urban areas of more developed and less developed nations reporting significant mortality events among vulnerable elderly populations (Pan & Bonnett, [this volume](#)). Finally, extreme events such as tornados, hurricanes, wildfires, and typhoons are becoming both stronger and more frequent. Recent work by Hosseini et al. (2020) demonstrates that there is currently a 50% probability that at least one level 5 Atlantic hurricane

will occur annually, a probability that is predicted to continue to increase over the next 50 years.

**Hydrological Cycles** As noted above, the global water cycle is heavily influenced by climate and changing temperatures. For example, over the past few decades, warming temperatures have accelerated evaporation and transpiration rates globally, resulting in more rapid cycling of water between terrestrial and ocean environments, including glacial melting, which impacts urban water supply in regions dependent on glaciers (Robertson, 2014), increased precipitation over land, release of methane concentrated in the permafrost – the ground that remains below freezing year-round (Robertson, 2014) –, and, due to land cover change (deforestation), more surface runoff. Glacier melting will also severely impact agricultural systems in some of the most densely populated regions of the world, notably in Asia, with flooding in the short run and decreasing water in the medium- and long-term (Warner et al., 2009).

One of the most significant threats resulting from changes in the water cycle is the reduction in quantity and quality of freshwater. However, GEC does not occur in a vacuum. Compounding these effects is the increased withdrawal of freshwater for food and industrial production, which places even greater risk on surface and underground sources of freshwater (examples include Lake Chad, Aral Sea, America's southwest aquifers, etc.). These combined pressures seriously threaten water quality resulting in higher pathogen loads from human and agricultural waste, eutrophication that causes dead zones in productive fisheries (e.g., Gulf of Mexico, Mediterranean Sea) and continued loss of wetlands biodiversity, which are critical for mitigating floods, water quality, and food security. Finally, climate change may severely impact extreme events from hydrologic causes, with increases in the intensity and frequency of flooding and droughts in several parts of the world, impacting water resources (for example, in the Andean region), public safety, and consequently

demographic dynamics (especially forced migration or mobility, morbidity, and mortality).

**Coastal Development and Oceans** GEC along coasts and in the oceans is being driven by aquaculture and commercial fisheries, tourism, shipping, and pollutant runoff from agriculture, extractive industries, and urbanization. The majority of these changes are caused by population growth and migration (resettlement) to coastal regions. However, climate change has also played an important role. In fact, warming oceans and greenhouse gases have pushed coral reefs past a tipping point of recovery. Increased temperatures cause coral to expel symbiotic algae, turning them white, indicating death. While reefs can recover in approximately 10 years, climate change has caused large scale bleaching at a six-year recurrence time. When these coastal resources are lost, research suggests there will be a cascading effect on food security and livelihoods that can cause large-scale movements of people.

Considering present emissions, rising sea level may reach, on average, 0.44 m to 0.74 m in the RCP2.6 and RCP8.5 scenarios, respectively (IPCC, 2013a). Sea level rise may induce saline intrusions, inundation, storm surges, erosion, and several coastal hazards, and is particularly hazardous in island communities (Warner et al., 2009). Warner et al. (2009: iv) also suggest that “*in the densely populated Ganges, Mekong, and Nile River deltas, a sea level rise of 1 meter could affect 23.5 million people and reduce the land currently under intensive agriculture by at least 1.5 million hectares. A sea level rise of 2 meters would impact an additional 10.8 million people and render at least 969 thousand more hectares of agricultural land unproductive.*”

**Air Quality** Air quality is fundamentally caused by humans generating emissions; however, poor air quality is exacerbated by population, urbanization, economic development, and climate change. Greenhouse gases (GHG) are the most well-known anthropogenic emissions, which include carbon dioxide, methane, ozone, and

nitrous oxide. GHG emissions have risen commensurate with population demand for energy needed for heating, cooling, cooking, lighting, and transportation, among others. In addition to GHG, air quality is impacted by other emissions such as persistent organic pollutants and particulate matter less than 2.5  $\mu\text{m}$  in diameter (PM<sub>2.5</sub>). The collective impact of exposure to indoor and outdoor air pollution is devastating, accounting for 7.6% of total global deaths and is the largest environmental contributor to the global burden of disease (Cohen et al., 2015). It is estimated that 60% of air pollution-attributed mortality occurs in South and East Asia, and North and East Africa where populations impacted are primarily children under five and the elderly. With 92% of the global population currently living in areas where pollution exceeds the WHO air quality guidelines (Shaddick et al., 2018) and the majority of these countries having limited to no regulations regarding the release of chemical emissions or burning of fossil fuels, air quality will continue to threaten and change livelihoods.

## The Demo-climatic Transition

Environmental changes, particularly GEC, have been recognized as a factor affecting demographic change (Flatø & Kotsadam, 2014; Flatø et al., 2017; Evans et al., 2010). However, theories on population transition have so far considered demographic and environmental processes independently. While the basis for demographic transition theory comes from European and U.S. demographic trends from the 1700s through the middle 1900s, and refinements have been made since then, the overall structure was laid using pre-GEC data. On the other hand, GEC, which has really only emerged since approximately the 1970s, has begun to alter the planet in permanent, yet spatially unpredictable ways. As an example, changes are not always in one location, but can be an extreme event—anything from hurricanes, tornados, and wildfires to local and global epidemics such as Ebola, dengue, malaria, and, of course, COVID-19.

Reframing the interactions between population and environmental changes in the Demo-climatic Transition framework can unveil how dynamic processes related to demographic dynamics (population size, growth, and composition) interact over time with GEC, in a recursive way. Based on the last column of Fig. 6.1, we provide below a description of hypothetical trajectories of morbidity, mortality, fertility, and migration during the Demo-climatic Transition.

**Morbidity and Mortality** Morbidity and mortality due to GEC may reach dramatic levels in less developed countries, and particularly in the least developed countries. The idea of epidemiological transition in less developed countries involves the concept of “incomplete transition”, as discussed before. That is, contrary to the experience of more developed countries where there was virtually the elimination of several infectious diseases causing high infant mortality, and morbidity/mortality is considered chronic and driven by non-communicable diseases, these two burdens coexist in the Southern hemisphere (except Australia). This is referred to as the “double burden of disease”. The Demo-climatic Transition may extend this to a “triple burden”, including external causes associated with disasters (urban settlements during extreme rain, sea level rise, etc.). Morbidity and mortality in more developed countries may continue to be mostly determined by chronic-degenerative and cardiovascular causes; however, GEC-driven diseases will increase in the vulnerable regions of those countries.

We also hypothesize that this transition will result in elevated urban mortality rates experienced by poor and older vulnerable populations while wealthier (and younger) parts of society hide in rural enclaves. This would be a “post-urban sink scenario”, drawing upon earlier discussion by Dyson (2011) on the role of urban areas as “sinks” (death rates extremely high and very much higher than birth rates) in pre-demographic transition stages. In this scenario, rural-urban migration emerged as the condition to maintain

urban growth (counterbalancing the impact of the demographic “sink” due to high mortality on population decline).

While Dyson (2011) discusses the urban sink scenario in terms of internal rural-urban migration, migration as a solution to counterbalance the post-urban sink scenario would be possible only if fostered by international migration (probably urban-urban due to predicted high urbanization rates worldwide). If, in a scenario of close to or below-replacement fertility, the stocks of potential migrants from developing countries are low or insufficient to counterbalance population decline in developed countries (or if migration policies are barriers for newcomers), urban areas in more developed countries would possibly face a “post-urban sink” or “deurbanization” scenario, as appears to have already begun in response to Covid-19. Urban areas, particularly the large metropolitan areas, could increasingly be viewed as an undesirable location, given that three-quarters of all megacities (greater than ten million) are on the coast or on major rivers leading to the ocean. In turn, a hypothetical higher mortality due to the triple burden of diseases in less developed countries, combined with below-replacement fertility as well as limited replacement migration (i.e., due to higher climate-driven emigration to developed countries) would lead to a “deurbanization” scenario in less developed countries as well. We assume, in both cases, that fertility would be below replacement levels (certainly in urban destination areas, but also in most sending regions).

Local epidemics and pandemics will play an additional role in increasing morbidity and mortality levels in the future, and will influence fertility and migration decisions. Zoonotic disease spillover into human populations can spread rapidly and disrupt societal functions, as demonstrated recently by COVID-19 as well as outbreaks of Ebola in Western Africa, Nipah virus in Southeast Asia, and Zika virus in Brazil. Human encroachment into natural landscapes combined with climate changes altering habitat and biodiversity have disrupted ecological systems that have increased the likelihood of diseases that cause large-scale mortality (Marani

et al., 2021). The severity of endemic diseases has also been on the rise, yet the impact of these on demographic events has yet to be determined. In endemic regions, diseases such as malaria have been observed to directly influence fertility rates (i.e., increased malaria associated with higher fertility due to increases in child mortality, see McCord et al., 2017). However, with GEC, regions defined as being endemic for local infectious diseases have expanded and the demographic response in these novel populations is yet to be observed (Barbieri & Confalonieri, 2011; Pizzittuti et al., 2015; Himeidan & Kweka, 2012).

In future demographic and epidemiological scenarios in the Demo-climatic Transition, population vulnerability to climate changes in less developed countries may be severely affected by an extensive increase in vector-borne, communicable, respiratory, and non-communicable diseases (Pizzittuti et al., 2015; D’Amato et al., 2015; Barbieri et al., 2015; Stenvinkel et al., 2020). Overall, adaptation strategies that include the development of long-term policies able to tackle the incomplete population transitions are central. In order to be effective, meaningful, and sustainable, policies should acknowledge differences between the short-term and long-term, as well as long-lasting impacts of climate variations, such as direct impacts to the economy. In this sense, Hultman and Bozmoski (2006) suggest an approach to reduce vulnerability and facilitate adaptation, including three factors: (a) the decentralization of decision-making authority, moving towards more disaggregated (local and regional) levels; (b) the expansion of protection mechanisms against environmental degradation; and (c) the transfer or diversification of the risk over time, space, and different institutions.

Barbieri et al. (2010) discuss the long-term relationship between climate change, population migration, and population health, and conclude that migration scenarios may also create new foci of endemic diseases due to the mobility of infected people, as well as increased pressure on urban infrastructure and the public health system. In another perspective, McNicoll (1992: 412) observes:

there must be other viruses existing in obscure pockets of the biosphere that can be released into human populations by still unknown changes in conditions or behaviors, against which the “global village” (increasingly a global city) lacks timely defenses. A virus equipped with a more effective mode of transmission than HIV could have an impact and order of magnitude greater. And short of acts of God, there remain large possibilities for mortality to be increased by direct human agency, through the breakdown of production and distribution systems in wars and political turbulence or through use of modern weaponry against civilian targets.

Regardless of climate impacts, population aging will potentially generate a higher susceptibility to cardiovascular and respiratory diseases, which are aggravated in situations of increasing heat. This will prompt adaptation measures of public health systems in conjunction with other adaptation measures such as the improvement of food security and the management of water resources (Barbieri et al., 2010; Barbieri & Confalonieri, 2011).

***Migration and Urbanization*** Forced migration, sometimes referred to as political migration, is becoming one of the key issues on the international policy agenda (May, 2012). For example, Barbieri et al. (2010) show that out-migration from the Northeast of Brazil will likely increase, reflecting increased flows of environmental refugees, and Tacoli (2009) suggests that environment-related out-migration could decrease vulnerability as people move out from environmentally affected areas. Environmental migration, or more specifically climate migration, may be a positive adaptation mechanism, increasing migrants’ resilience and decreasing vulnerability, or having the opposite effect, when post-displacement situations increase their vulnerability. Migration as a way to flee risks is a costly endeavor and requires one or a combination of capitals (human, financial, social). In this sense, Warner et al. (2009) suggest, based on a review of several case studies, that the lack of resources makes poorer environmental migrants find their destinations as precarious as the places they left behind.

The completion of the demographic transition in virtually all countries of the world by the second half of this century (Lee, 2003) and, consequently, the low natural population growth, will hinder population mobility towards urban areas as the key factor determining population dynamics and population distribution dynamics (Coleman, 2006; Skeldon, 2012), not anticipating here great mortality shocks due to GEC. Besides low fertility and natural population growth rates, mobility will prompt the demand for an international governance system as well as local planning and public policy capacity to improve the living conditions of migrants and, in some cases, to regulate migration flows due to national concerns about security (May, 2012).

Moreover, mobility associated with settlements in urban risk areas, such as shantytowns and coastal zones susceptible to the impacts of sea level rise, may increase future stocks of populations at risk to climate change (see, for example, McGranahan et al., 2007; de Sherbinin et al., 2008). The persistence of “old vulnerabilities” (e.g., due to poverty and inequality) may interact with “new vulnerabilities” associated with the population characteristics emerging from the demographic, mobility, urban, and epidemiological transitions as well as environmental changes (e.g., sea level rise). For example, the combination of population aging, with its implication for the public health and pension systems as well as the dual health burden from an incomplete epidemiological transition in developing countries, coupled with the lack of infrastructure in urban areas, may represent the reproduction, persistence, or amplification of population vulnerability to GEC.

Thus, the juxtaposition of the urban, epidemiological, and demographic transitions may create additional challenges for urban population policies and planning and demand interventions to achieve more sustainable and compact cities that mediate changes in the environmental, social, and behavioral factors affecting wellbeing (Gilles-Corti et al., 2016). In the same tandem, population transitions fostering a changing structure of families and households (e.g., smaller

households, shifting gender roles, and multigenerational cohabitation), immigration (with concentration in some cities or within specific intra-urban “enclaves”), and population aging (with impacts on population mobility and accessibility to health facilities) will be central elements of future population policies in urban areas (Laws, 1994). In addition, population transitions point to a future scenario of mobility increasingly changing demographic dynamics, both in terms of population growth and stock (with immigration being a more important driver of population growth in the developed countries than the natural growth rate) and in population composition, such as changing ethnic composition. Other factors may increase resilience and promote adaptive capacity when faced with future scenarios of climate change, such as higher levels of formal education, increased coverage of public transfers to the most in need, and basic infrastructure expansion. In particular, education may increase resilience to climate change by a variety of underlying mechanisms, such as by improving individuals’ willingness to adopt climate robust technological innovations (Deressa et al., 2009; Dessai & Hulme, 2007).

Precarious urbanization is particularly challenging when additional pressures from a changing environment come into play, requiring larger public budgeting for infrastructure preparedness. Increasing mobility and concentration in urban areas may also pose several challenges regarding migration towards informal precarious settlements, particularly in urban coastal zones. Climate changes may increase future stocks of refugees or forced migration due to environmental disasters related to climate changes (combined with other political, ethnic, and economic pushes such as land degradation).

Coleman (2006: 405) argues that in a context of global low fertility, migration will be the “driving force behind demographic change in many European countries, both directly and indirectly through the natural increase of population of immigrant origin.” Given the world’s urbanization trends, most of these refugee populations might settle in urban areas, being susceptible to a plethora of climate-related events. Data from the

United Nations Refugee Agency (UNHCR) estimate 70.8 million forcibly displaced people worldwide in 2018, with 41.3 million internally displaced, 25.9 million refugees, and 3.5 million asylum-seekers.<sup>5</sup> Growing population mobility in the next decades, particularly due to disasters and extreme events (floods, droughts, cyclones, etc.) will continue to distribute the population mainly among urban centres, particularly larger metropolitan areas in less developed countries. In this sense, Warner et al. (2009: 1) suggest that environmentally-induced migration and displacement “has the potential to become an unprecedented phenomenon—both in terms of scale and scope.” The authors also suggest that “although the precise number of migrants and displaced people [due to climate changes] may elude science for some time, the mass of people on the move will likely be staggering and surpass any historical antecedent. Most people will seek shelter in their own countries while others will cross borders in search of better chances (. . .) however, poorer countries are under-equipped to implement wide-spread adaptation activities; and migration will be the only option for many people in the South.”

Climate-induced migration is a pattern not predicted, or discussed, in population transition frameworks—neither the mobility transition by Zelinsky, nor the demographic transition (that considers only natural population growth). Given the timing of his seminal article, we could not expect from Zelinsky (1971) accounting for the role of environmental factors on shaping the nature of the ultimate stage of a mobility transition. However, we can argue that the ultimate stage creates the conditions – such as the effects of hyper-development favoring increasing mobility patterns over time and spatial scales – for an ulterior, post-mobility stage in a global scenario of environmental/political/ethnic refugee waves. This scenario includes globalization, advanced communication and transportation systems, hyper-urbanized societies and integrated markets, conflicts, environmental stress and climate

<sup>5</sup> UNHCR; see <https://www.unhcr.org/ph/figures-at-a-glance>, accessed on April 15, 2020.



changes, and the combination of a diversity of mobility patterns (permanent, temporary, voluntary, or compulsory).

***Fertility and Population Growth*** The last stage of the demographic transition suggests a homeostatic equilibrium, with low birth and death rates and consequently low population growth. The advanced stage of the demographic transition would be associated with higher welfare levels. Low fertility would be the main driver of demographic dynamics. As discussed before, a criticism of this narrative is its neglect of the contemporary experience of less developed countries, where the incomplete epidemiological transition would assure higher mortality than that experienced by more developed countries when completing the transition. Zelinsky (1971) suggests an association between mobility and demographic transition (this last refers to the dynamics of natural population growth), but if GEC raises mortality in both developed countries (due to age-related vulnerabilities) and developing countries (due to environmental damage and natural disasters), higher fertility may be necessary to prevent substantial population decline.

In the Demo-climatic Transition, fertility may continue to be the main driver of population growth. Global below-replacement fertility levels are expected to be achieved by the end of this century, albeit a gap between more and less developed countries may remain (United Nations, 2017). Fertility may also reach levels lower than expected due to longtime climate and environmental crisis affecting socioeconomic wellbeing and welfare, following previous historical accounts of fertility interruption due to crisis and exceptional periods (disasters, wars, epidemics, etc.). However, we hypothesize two major differences compared to the demographic transition. First, the cleavage between less and more developed countries regarding natural population growth would be higher due to the impacts, on the former, of climate-induced morbidity and mortality (the triple burden as discussed before). Given the “sink” effect due to higher mortality (as well

as international net emigration and low rural population stocks), urban areas in less developed countries may experience slower population growth once fertility rates converge with those from more developed countries.

The second hypothesis is that future demographic dynamics in the Demo-climatic Transition will be greatly shaped by population distribution patterns—not only in terms of increasing urban concentration, as discussed before in terms of the urban transition, but also climate-induced international migration. In combination with mortality differentials, international migration may increasingly shape a gap in demographic trends between more and less developed countries over the next decades.

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### **Conclusion: Reframing Population Policies in the Demo-climatic Transition**

We argue that understanding the nature and consequences of population transitions will be fundamental in the elaboration and implementation of policies regarding the environment in the next decades, particularly those related to climate changes. We build this statement upon two arguments. First, the different scales defining population vulnerability demand relating natural/anthropogenic processes such as climate changes – on a global spatial scale and long-range (decades, centuries) temporal scale – to middle- and long-run social processes, which involve local and regional dynamics as well as a more responsive, short-run temporal scale. While forecasting demographic dynamics and other social processes over the same temporal scale as climate changes is a difficult task, demography as a discipline is in a position to provide an approximation between these scales given its focus on the analysis of causes and consequences of changes in the size and composition of cohorts and generations.

Second, the global and local scales of vulnerability will assume a new, unprecedented nature in the following decades, posing great challenges for

population policies, and requiring local and global governance and multilateral institutions. An assumption regarding population transitions is their evolutionist and universalist character: less developed countries would mimic the population transitions of more developed countries as they advance through the gradients of modernization processes. The fallacy in this argument is the specific nature of the modernization process in less developed countries, with a pattern of urbanization and industrialization based upon increasing exclusion, inequality, and persistence of absolute poverty levels for a significant part of the population. This “incomplete modernization” results from the marginal, dependent insertion of less developed countries into the globalization process, and creates a momentum in existing vulnerabilities as well as new vulnerabilities to climate changes in the next decades. It is thus likely that population transitions and the impacts of climate changes in the Demo-climatic Transition will increase the gap between more and less developed countries and their adaptive capacity if internal development strategies combined with multilateral governance instruments, such as compensation mechanisms, become inefficient or even nonexistent. In this context, adaptation strategies and compensation funds must give priority to the world’s most vulnerable populations in the Global South, who will be the greater victims of the modern, urban, and industrial “development” pattern adopted by the current richer countries since the Industrial Revolution. Besides being a question of socio-environmental justice, this priority also involves a humanitarian dimension that may define our choice for civilization or barbarism in the coming decades.

Based on these arguments, we believe that the middle- and long-range character of population and climate transitions pose a fundamental challenge for the future agenda of population policies. Population transitions, as a framework depicting the co-evolution of demographic and development processes, were laid out before GEC. However, GEC has become an intrinsic, indivisible component of population transitions, which must be (re)conceptualized if transition theory aims to become a useful tool for sustainable

development planning. As mentioned by McNicoll (1992: 413):

the ‘greenhouse’ scenario of climate change, because of the scientific uncertainty that attaches to it and the intricacy of any cooperative remedy, is the prototypical problem here: cumulatively large in worst-case potential effect over the demographically medium term of a generation or two but with regionally unequal incidence and a contested probability distribution.

The co-evolution of population and climate transitions in the coming decades may severely impact old and new vulnerabilities across the globe, and particularly in the less developed countries. “No-regrets” or innovative policies fostering population adaptation and vulnerability reduction regarding climate change may thus be a central component in planning and policymaking. This also presupposes innovative institutional arrangements (or enhancing existing ones), involving multilateral mechanisms. Global arrangements such as the COPs (Conferences of Parties), the Kyoto Protocol, Global Compact for Migration, and the Biodiversity Convention have had limited effectiveness in coping with challenges posed by GEC.

The surge of the environmentalist movement in the 1970s put on the international policy agenda the debate about the consequences of human action on the environment and on the climate in particular. The first United Nations Conference on the Environment in Stockholm (1972) was a landmark of the international debate and policymaking regarding the human-nature relationship and, among other achievements, acknowledged and reinforced the role of Non-Governmental Organizations (NGO) and created the United Nations Environmental Programme (UNEP) (McComirck, 1992). Another important step towards a policy agenda regarding the human dimensions of climate change was the creation of the International Panel on Climate Change (IPCC) in December 1988. According to the United Nations general Assembly resolution 43/53, the objective of the IPCC is “(. . .) *to prepare a comprehensive review and recommendations with respect to the state of knowledge of the science of climate change;*

*social and economic impact of climate change, possible response strategies and elements for inclusion in a possible future international convention on climate.*”<sup>6</sup> The first IPCC Assessment report in 1990 highlighted the need to create an international, multilateral policy effort to cope with the challenges of climate change and, in this sense, influenced the creation of the United Nations Framework Convention on Climate Change (UNFCCC) during the United Nations Conference for the Environment in Rio de Janeiro (1992). The creation of the UNFCCC fostered the realization of several Conferences of Parties (COPs) of the UNFCCC, aiming to create multilateral mechanisms and policies to cope with challenges posed by climate changes. Among them, the third COP conference (COP-3) in Kyoto, Japan, created the Kyoto Protocol and set the basis for market mechanisms regarding the commercialization of carbon emissions, including those emissions from deforestation (REDD).

As suggested by O’Neill et al. (2001), the IPCC has formulated climate change policies based upon four main bases: (i) “no-regrets policies” or the adoption of policies that may have a beneficial impact on populations even if climate changes are not taken into account, or their impacts are over estimated, should be widely implemented; (ii) climate changes will incur significant costs on society, for example, economic costs for national economies (Margulis et al., 2011); (iii) climate changes may exacerbate inequalities within and between countries and in an inter-generational perspective, thus justifying policy interventions; and (iv) even with uncertainties regarding climate changes projections, people tend to adopt a more precautionary attitude given risk aversion (see IPCC, 2012, 2013a, b). Regarding this last aspect, Giddens (2009) criticizes the “precautionary principle” in climate change policies given its excessive focus on risks and its conflict with the “development imperative” in less developed countries. Instead, he suggests the adoption of a

“percentage principle”, in which risks and benefits would inform policies in a more balanced way.

The complex, multi-faceted nature of the causes and consequences of climate changes on populations impose challenges not only in terms of scientific understanding but also in terms of adaptation policies. Rising nationalism, and national and regional conflicts, as well as vested economic interests have jeopardized the commitment to a global, multilateral policy agenda and increased the divide between a “development imperative” (Giddens, 2009) and long-term policies and construction of planning capacity to deal with adaptation and vulnerability issues in the Third Wave. Poor local and national institutional capacity and governance to cope with local issues related to greenhouse gases emission and vulnerability reduction – particularly among most vulnerable groups in terms of gender gaps, income levels, access to sanitation, and infrastructure and services, and power asymmetries among different stakeholders – have been a structural issue, particularly in less developed countries. Moreover, the challenges in achieving policies on global governance over environmental (and particularly climate) transitions may face increasing difficulties of implementation due to population transitions, particularly in the less developed world. As suggested by Goldstone et al. (2012), demographic changes resulting from these transitions may create further instability in the political arena in terms of party alignments and difficulties to establish sustainable stable majorities. Global cooperation will be increasingly essential to solve what are, on many scales, emerging local, regional, national, and pre-eminently global patterns of environmental change.

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## References

- Barbieri, A. F. (2013). Transições populacionais e vulnerabilidade às mudanças climáticas no Brasil. *Redes*, 18, 1–15.
- Barbieri, A. F., & Confalonieri, U. E. (2011). Climate change, migration and health: Exploring potential scenarios of population vulnerability in Brazil

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<sup>6</sup> See [http://www.ipcc.ch/organization/organization\\_history.shtml](http://www.ipcc.ch/organization/organization_history.shtml), accessed on April 20, 2020.

- migration and climate change. In E. Pigué et al. (Eds.), *Migration and climate change* (pp. 49–73). Cambridge University Press.
- Barbieri, A. F., Domingues, E., Queiroz, B., Ruiz, R., Rigotti, J. I., Carvalho, J. A., & Resende, M. F. (2010). Climate change and population migration in Brazil's Northeast: Scenarios for 2025–2050. *Population and Environment*, 31, 344–370.
- Barbieri, A. F., et al. (2015). Population transitions and temperature changes in Minas Gerais, Brazil: A multi-dimensional approach. *Revista Brasileira de Estudos de População*, 32, 461–488.
- Barbieri, A. F., Guedes, G. R., Correa, I., & Ojima, R. (2019). *Population mobility and adaptation to droughts in the Brazilian Semi-Arid*. Paper presented at the Annual Meeting of the Population Association of America (PAA), April 1–13, 2019, Austin, TX.
- Black, R., Adger, W. N., Arnell, N. W., Dercon, S., Geddes, A., & Thomas, D. (2011). The effect of environmental change on human migration. *Global Environmental Change*, 21(1), S1–S2. <http://eprints.soas.ac.uk/18150/>
- Bongaarts, J. (2003). Encyclopedia of population. *Population and Development Review*, 29(2), 328–330. (Short Review).
- Boserup, E. (1965). *The conditions of agricultural growth*. Aldine Publishing Company.
- Bullard, R. (1994). Environmental justice for all. In R. D. Bullard (Ed.), *Unequal protection: Environmental justice and communities of color* (pp. 3–22). Sierra Club Books.
- Carson, R. (1962). *Silent Spring*. Houghton Mifflin.
- Coale, A. J., & Hoover, E. M. (1958). *Population growth and economic development in low-income countries*. Princeton University Press.
- Cohen, A. J., et al. (2015). Estimates and 25-year trends of the global burden of disease attributable to ambient air pollution: An analysis of data from the Global Burden of Diseases Study. *The Lancet*, 389(10082), 1907–1918.
- Coleman, D. (2006). Immigration and ethnic change in low-fertility countries: A third demographic transition. *Population and Development Review*, 32(3), 401–446.
- Curran, S. R., & de Sherbinin, A. (2004). Completing the picture: The challenges of bringing “consumption” into the population-environment equation. *Population and Environment*, 26(2), 107–131.
- Cutter, S. (1996). Vulnerability to environmental hazards. *Progress in Human Geography*, 20(4), 529–539.
- D'Amato, G., Holgate, S. T., Pawankar, R., et al. (2015). Meteorological conditions, climate change, new emerging factors, and asthma and related allergic disorders. A statement of the World Allergy Organization. *World Allergy Organization Journal*, 8(1), 25. <https://doi.org/10.1186/s40413-015-0073-0>
- Demény, P. (2003). *Population policy: A concise summary* (Working paper no. 173). The Population Council, Policy Research Division.
- Deressa, T., Hassan, R., Alemu, T., Yesuf, M., & Ringler, C. (2009). *Analyzing the determinants of farmers' choice of adaptation measures and perceptions of climate change in the Nile Basin of Ethiopia* (Discussion paper no. 00798). International Food Policy Research Institute (IFPRI).
- de Shebernin, A., VanWey, L., McSweeney, K., Aggarwal, R., Barbieri, A. F., Henry, S., Hunter, L., Twine, W., & Walker, R. (2008). Rural household micro-demographics, livelihoods and the environment. *Global Environmental Change*, 18, 38–58.
- Dessai, S., & Hulme, M. (2007). Assessing the robustness of adaptation decisions to climate change uncertainties: A case study of water resources management in the East of England. *Global Environmental Change*, 17, 59–72. <https://doi.org/10.1016/j.gloenvcha.2006.11.005>
- Dyson, T. (2005). On development, demography and climate change: The end of the world as we know it? *Population and Environment*, 27(2), 117–149.
- Dyson, T. (2011). The Role of the Demographic Transition in the Process of Urbanization. In R. D. Lee & D. S. Reher (Eds.), *Demographic Transition and Its Consequences*. *Population and Development Review*, 37(Suppl), 34–54.
- Ehrlich, P. R., & Holdren, J. P. (1971). Impact of population growth. *Science*, 171(3977), 1212–1217.
- Evans, R. W., Hu, Y., & Zhao, Z. (2010). The fertility effect of catastrophe: U.S. hurricane births. *Journal of Population Economics*, 23, 1–36. <https://doi.org/10.1007/s00148-008-0219-2>
- Flåtø, M., & Kotsadam, A. (2014). *Droughts and gender bias in infant mortality in Sub-Saharan Africa*. Memorandum 02/2014 University of Oslo. See <https://ideas.repec.org/p/hhs/osloec/2014002.html> & <https://www.sciencedirect.com/science/article/pii/S0305750X16304430>
- Flåtø, M., Mutarak, R., & Pelsler, A. (2017). Women, weather, and woes: The triangular dynamics of female-headed households, economic vulnerability, and climate variability in South Africa. *World Development*, 90, 41–62. <https://doi.org/10.1016/j.worlddev.2016.08.015>
- Füssel, H. M. (2007). Vulnerability: A generally applicable conceptual framework for climate change research. *Global Environmental Change*, 17(2), 155–167.
- Giddens, A. (2009). *The politics of climate change*. Polity Press.
- Giles-Corti, B., Vernez-Moudon, A., et al. (2016). City planning and population health: A global challenge. *The Lancet*, 388(10062), 2912–2924.
- Goldstone, J., Kaufman, E., & Toft, M. (2012). *Political demography*. Oxford University Press.
- Hajat, S., Vardoulakis, S., Heaviside, C., & Eggen, B. (2014). Climate change effects on human health: Projections of temperature-related mortality for the UK during the 2020s, 2050s and 2080s. *Journal of Epidemiology and Community Health*, 68. <https://doi.org/10.1136/jech-2013-202449>

- Hedenus, F., Wirsenius, S., et al. (2014). The importance of reduced meat and dairy consumption for meeting stringent climate change targets. *Climatic Change*, 124, 79–91.
- Himeidan, Y. E., & Kweka, E. J. (2012). Malaria in East African highlands during the past 30 years: Impact of environmental changes. *Frontiers in Physiology*, 3, 315. <https://doi.org/10.3389/fphys.2012.00315>
- Hodgson, D. (1988). Orthodoxy and revisionism in American demography. *Population and Development Review*, 14(4), 541–569.
- Hosseini, S. R., Scaioni, M., & Marani, M. (2020). Extreme Atlantic hurricane probability of occurrence through the Metastatistical Extreme Value Distribution. *Geophysical Research Letters*, 47, 2019GL086138. <https://doi.org/10.1029/2019GL086138>
- Hultman, N., & Bozmoski, A. (2006). Changing face of normal disaster: Risk, resilience and natural security in a changing climate. *Journal of International Affairs*, 59(2), 25–41.
- Hummel, D., Adamo, S., et al. (2013). Inter- and transdisciplinary approaches to population–environment research for sustainability aims: A review and appraisal. *Population and Environment*, 34(4), 481–509.
- Hunter, L. M., Luna, J. K., et al. (2015). Environmental dimensions of migration. *Annual Review of Sociology*, 41(1), 377–397.
- IPCC. (2012). *Managing the risks of extreme events and disasters to advance climate change adaptation. A special report of working groups I and II of the intergovernmental panel on climate change* [C. B. Field, V. Barros, T. F. Stocker, D. Qin, D. J. Dokken, K. L. Ebi, M. D. Mastrandrea, K. J. Mach, G. K. Plattner, S. K. Allen, M. Tignor, & P.M. Midgley. (Eds)]. Cambridge University Press.
- IPCC. (2013a). Annex II: Climate system scenario tables, by M. Prather, G. Flató, P. Friedlingstein, C. Jones, J. F. Lamarque, H. Liao, & P. Rasch. (Eds). In *Climate change 2013: The physical science basis. Contribution of working group I to the fifth assessment report of the intergovernmental panel on climate change*. [T. F. Stocker, D. Qin, G. K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, & P. M. Midgley. (Eds)]. (Pp. 1395-1445). Cambridge University Press.
- IPCC. (2013b). Summary for policymakers. In T. F. Stocker, D. Qin, G. K. Plattner, M. Tignor, S. K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, & P. M. Midgley (Eds.), *Climate change 2013: The physical science basis: Contribution of Working Group I to the Fifth Assessment Report of the intergovernmental panel on climate change* (pp. 3–29). Cambridge University Press.
- Jiang, L., & Hardee, K. (2011). How do recent population trends matter to climate change? *Population Research and Policy Review*, 30(2), 287–312.
- King, R., Skeldon, R., & Vullnetari, J. (2008). *Internal and international migration: Bridging the theoretical divide* (Working paper n. 52). University of Sussex, Sussex Centre for Migration Research.
- Landry, A. (1909). Les trois théories de la population. *Revue Scientia*.
- Laws, G. (1994). Implications of demographic changes for urban policy and planning. *Urban Geography*, 15(1), 90–100.
- Lee, R. D. (1984). *Malthus and Boserup: A dynamic synthesis*. University of California, Institute of International Studies.
- Lee, R. D. (2003). The demographic transition: Three centuries of fundamental change. *Journal of Economic Perspectives*, 17(4), 167–190. <https://doi.org/10.1257/089533003772034943>
- Malthus, T. ([1798], 1960). *On population*. Modern Library (Random House).
- Marani, M., Katul, G., Pan, W. K., & Parolari, A. (2021). Intensity and frequency of extreme novel epidemics. *Proceedings of the National Academy of Sciences*. August 23, 2021.
- Margulis, S., Dubeux, C., Barbieri, A. F., et al. (2011). The economics of climate change in Brazil: Costs and opportunities. *São Paulo, BR: Vox Editoria e Gráfica*, 1, 82.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- McComirck, J. (1992). *Rumo ao Paraíso: a história do movimento ambientalista*. Relume-Dumará.
- McCord, G. C., Conley, D., & Sachs, J. D. (2017). Malaria ecology, child mortality & fertility. *Economics and Human Biology*, 24, 1–17. <https://doi.org/10.1016/j.ehb.2016.10.011>
- McGranahan, G., Balk, D., et al. (2007). The rising tide: Assessing the risks of climate change and human settlements in low elevation coastal zones. *Environment & Urbanization*, 19(1), 17–37.
- McLeman, R. (2010). Impacts of population change on vulnerability and the capacity to adapt to climate change and variability: A typology based on lessons from “a hard country”. *Population and Environment*, 31, 286–316.
- McLeman, R., & Smit, B. (2006). Migration as an adaptation to climate change. *Climatic Change*, 76(1-2), 31–53.
- McNicoll, G. (1992). The agenda of population studies: A commentary and a complaint. *Population and Development Review*, 18(3), 399–420.
- McNicoll, G. (1994). *Mediating factors linking population and the environment. Population, environment, and development*. United Nations.
- Meadows, D. H., et al. (1972). *The limits to growth; a report for the Club of Rome’s project on the predicament of mankind*. Universe Books.
- Moriconi-Ebrard, F. (1993). *L’urbanisation du monde*. Anthropos.
- Myers, C. A., Slack, T., et al. (2008). Social vulnerability and migration in the wake of disaster: The case of Hurricanes Katrina and Rita. *Population and Environment*, 29(6), 1573–7810.

- Notestein, F. W. (1945). Population—the long view. In T. W. Schultz (Ed.), *Food for the world*. University of Chicago Press.
- O'Neill, B. C., et al. (2010). Global demographic trends and future carbon emissions. *Proceedings of the National Academy of Sciences (PNAS)*, 107(41), 17521–17526.
- O'Neill, B. C., MacKellar, F. L., et al. (2001). *Population and climate change*. Cambridge University Press.
- Omrán, A. (1971). The epidemiological transition: A theory of the epidemiology of population change. *The Milbank Quarterly*, 83(4), 731–757.
- Pan, W. K., & Bonnett, G. (this volume). Land use change and health. In L. M. Hunter, C. Gray, & J. Véron (Eds.), *International handbook of population and environment*. Springer.
- Pebley, A. R. (1998). Demography and the environment. *Demography*, 35(4), 377–389.
- Pizzitutti, F., Pan, W. K., Barbieri, A., Confalonieri, U., Miranda, J., Feingold, B., Guedes, G., Alarcon-Valenzuela, J., Martinez, P., & Mena, C. (2015). A validated agent-based model to study the spatial and temporal heterogeneities of malaria incidence in the rainforest environment. *Malaria Journal*, 14, 1–9.
- Prata, P. R. (1992). The epidemiologic transition in Brazil. *Cadernos de Saúde Pública*, 8(2), 168–175.
- Pulido, L. (1996). A critical review of the methodology of environmental racism research. *Antipode*, 28, 142–159. <https://doi.org/10.1111/j.1467-8330.1996.tb00519.x>
- Robertson, M. (2014). *Sustainability: Principles and practice*. Routledge.
- Rodriguez, R. S., & Bonilla, A. (2007). *Urbanization, global environmental, change, and sustainable development in Latin America* (pp. 7–31). IAI, INE, UNEP.
- Rostow, W. W. (1959). The stages of economic growth. *The Economic History Review*, 12, 1–16. <https://doi.org/10.1111/j.1468-0289.1959.tb01829.x>
- Ruttan, V. W. (1993). Population growth, environmental change, and innovation: Implications for sustainable growth in agriculture. In C. L. Jolly & B. B. Torrey (Eds.), *Population and land use in developing countries* (pp. 124–156). National Academy Press.
- Schramm, J. M. A., et al. (2004). Transição epidemiológica e o estudo de carga de doença no Brasil. *Ciência & Saúde Coletiva*, 9(4), 897–908. See <https://www.scielo.br/j/csc/a/NcL6K3C5p7dRgQfZ938WtRD/?format=pdf>
- Shaddick, G., Thomas, M. L., Green, A., Brauer, M., van Donkelaar, A., Burnett, R., Chang, H. H., Cohen, A., Dingenen, R. V., Dora, C., Gummy, S., Liu, Y., Martin, R., Waller, L. A., West, J., Zidek, J. V., & Prüss-Ustün, A. (2018). Data integration model for air quality: A hierarchical approach to the global estimation of exposures to ambient air pollution. *Journal of the Royal Statistical Society*, 67, 231–253. <https://doi.org/10.1111/rssc.12227>
- Simon, J. L. (1981). *The ultimate resource*. Princeton University Press.
- Skeldon, R. (2012). Migration transitions revisited: Their continued relevance for the development of migration theory. *Population, Space and Place*, 18(2), 154–166.
- Stenvinkel, P., Shiels, P. G., Painer, J., Miranda, J. J., Natterson-Horowitz, B., & Johnson, R. J. (2020). A planetary health perspective for kidney disease. *Kidney International*, 98(2), 261–265. <https://doi.org/10.1016/j.kint.2020.03.024>
- Tacoli, C. (2009). Crisis or adaptation? Migration and climate change in a context of high mobility. *Environment and Urbanization*, 21, 513–525. <https://doi.org/10.1177/0956247809342182>
- Thompson, W. (1929). Population. *American Journal of Sociology*, 34(6), 959–975.
- United Nations. (2017). *World fertility report 2015 – Highlights*. Department of Economic and Social Affairs, Population Division.
- Vučković, M., & Adams, A. (this volume). Chapter 18: Population and health policies in urban areas. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Warner, K., Ehrhart, C., de Sherbinin, A., Adamo, S., & Chai-Onn, T. (2009). *In search of shelter – Mapping the effects of climate change on human migration and displacement*. CARE/CIESIN/ UNHCR/UNU-EHS/ World Bank. See: [http://www.ciesin.columbia.edu/documents/clim-migr-report-june09\\_media.pdf](http://www.ciesin.columbia.edu/documents/clim-migr-report-june09_media.pdf)
- Zagheni, E. (2009). The demographic dimension of climate change. In E. Kahraman & A. Baig (Eds.), *Environmentalism, environmental strategies, and environmental sustainability* (pp. 191–209). Nova Science Publishers.
- Zagheni, E. (2011). The leverage of demographic dynamics on carbon dioxide emissions: Does age structure matter? *Demography*, 48(1), 371–399. <https://doi.org/10.1007/s13524-010-0004-1>
- Zelinsky, W. (1971). The hypothesis of the mobility transition. *The Geographical Review*, 61(2), 219–249.



# Population and Food System Sustainability

# 7

George Mergos

## Introduction

Population dynamics are central in the debate about sustainable development. Population growth, population aging and decline, as well as migration and urbanization, affect virtually all development objectives. They do not only affect consumption patterns, production structures, employment opportunities, income distribution and poverty, but they also have important consequences for efforts to ensure access to health, education, housing, sanitation, water, food, and energy (Albrechtsen, 2013). At the same time, the agro-food system is at the heart of the 2030 UN Sustainable Development Agenda, from ending poverty and hunger to climate change and sustaining natural resources (United Nations, 2015).<sup>1</sup>

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<sup>1</sup> *The 2030 Agenda for Sustainable Development* of the United Nations (UN) includes 17 Sustainable Development Goals (SDGs), which are global objectives that shape current and future policies and national development plans. The SDGs replaced the Millennium Development Goals (MDGs) of 2000 that established measurable, universally agreed objectives for tackling extreme poverty and hunger, among other development priorities.

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Population dynamics are inextricably linked to all parts of the agro-food system and determine largely its operational efficiency. Although the world population will probably “peak” by the end of this century or in the beginning of the twenty-second century, several global population trends will challenge for an even longer period the current relationship between population and food. The challenge of the twenty-first century is to solve the problem of meeting the increasing needs and expectations of a growing population while at the same time modifying the current production and consumption patterns to achieve a more sustainable development model and address the links between development and rapid population change. Agricultural production has enormous impacts on the world’s most critical resources, and farmers must produce food but at the same time ensure the provision of vital ecosystem services. If they do not, we will not only have a degradation of vital resources but the global long-term ability to produce food will be undermined. Therefore, achieving sustainability and resilience<sup>2</sup> of the agro-food system, while meeting the food needs of a growing population is a central global goal of the Sustainable Development Goals (United Nations, 2019a). The

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<sup>2</sup> A resilient food system can withstand and recover from disruptions in a way that ensures a sufficient supply of acceptable and accessible food for all. For a detailed definition of the term resilience, see <https://clf.jhsph.edu/projects/food-system-resilience>

relation of population growth with future trends on the demand-side and supply-side of the agro-food system poses a series of policy challenges.

The issue of food-population balance has been on the development agenda under various names and concepts for centuries, but formally was introduced as “food security” in 1974 at the World Food Summit. Initially, problems of long-term food supply were considered caused by factors affecting long-term food demand, supply, and trade (Valdes, 1981). However, Sen’s seminal work (1981) refocused the issue on unequally distributed food supplies and incomes, at local and household level. This shift of focus coupled with generally optimistic views about global supply and access to food prevailing during the 1980s and 1990s, led research efforts in the 1990s towards poverty alleviation and household level food and nutrition security (Maxwell & Frankenberger, 1992).

The second half of the twentieth century has been very successful in uplifting large parts of the global population from poverty and hunger, but this was achieved unevenly, leaving about one billion of people to suffer food and nutrition insecurity (von Brown, 2014). The success of 50 years, from 1940 to 1990, has been unparalleled in world history with about four billion people having adequate calories, up from only two billion 50 years before. Public and private agricultural research, and policy reform led to productivity growth far outpacing demand growth, increasing land and water efficiency use, and steadily lowering real agricultural prices through the mid-2000s. The result of these successful development efforts was to help hundreds of millions of people escape from poverty, enabling population growth, urbanization, and income growth globally (Barrett, 2012). This success induced complacency and underinvestment, creating a slowdown of food output growth at a time when food demand growth was accelerating, leading to food price spikes and high food price volatility in the 2000s (Barrett, 2012; Mellor, 1986).

The spikes and volatility of food prices in the 2000s initiated new research and policy interest on agro-food systems due to increasing food market crises, forcing governments and international

organizations to consider the food-population balance again. However, at the same time environmental and health concerns that had begun in the 1980s moved to center-stage of the development debate and public awareness about climate change impact increased (Stern, 2006). As a result, the new concept of “food sustainability” was introduced, signifying the nexus between food security, health, and environmental sustainability, attracting wider attention from the scientific community and policymakers alike (Godfray et al., 2010).

The recognition that agro-food systems are under severe stress due to climate change, population dynamics, and resource degradation induced wide and interdisciplinary research efforts (Godfray et al., 2010; Nelson et al., 2010). During the 2010s, there has been a flood of publications on ‘How to feed the World in 2050’. A systematic review of published research by El Bilali (2019) focused on the sustainability issue of agro-food transitions. Obviously, agro-food represents only a small share of the sustainability transitions research field. However, strong research efforts on food security and nutrition, and on sustainability issues of the agro-food system in general, led to a voluminous literature on “food system sustainability.” The Organisation for Economic Co-operation and Development (OECD) “triple challenge” framework on the issue offers the setting for policy coherence (OECD, 2020).

The first section of this chapter is focused on the concepts of food security and food sustainability, starting with a brief historical overview of how the issue developed over the past 50 years. The next section provides a brief review of the relation between population dynamics and the operation of the agro-food system, discussing global trends that will shape the relation between population and food in the future and distinguishing the demand-side and the supply-side of the food equation. The following section presents the policy challenges and priorities, as well as the governance issues for achieving a sustainable agro-food system, including a brief discussion of measurement issues because measurement is the foundation of



evidence-based policy making. Finally, the last section of the chapter offers a conclusion.

## The Concepts of Food Security and Food Sustainability

The relation between “food and nutrition security” and “food sustainability” is mostly a matter of how people choose to frame or define the problem. A brief historical account of both concepts would help clarify the relation between the two.

Shaw, who was associated with the United Nations World Food Programme almost from the start in 1963, provides a comprehensive account of the numerous global attempts made since the Second World War to address hunger and undernutrition (Shaw, 2007). A conference convened by President Roosevelt in Virginia, USA in 1943 organized ‘to consider the goal of freedom from want in relation to food and agriculture’ led to the creation of the Food and Agriculture Organization (FAO) in 1945 with ultimate objective to ensure ‘an abundant supply of food for all mankind’ (Shaw, 2007: 3). Though the concept of food security was formulated initially as a response to the food crisis of the 1970s in the 1974 World Food Conference (Konandreas et al., 1978; Sarris & Taylor, 1976), it evolved considerably reflecting largely the changing economic, social, and environmental concerns. Shaw notes that “. . . in the years since the 1974 World Food Conference, the concept of food security has ‘evolved, developed, multiplied and diversified’. . . . One count put the number of definitions of ‘food security’ at close to two hundred.” (Shaw, 2007: 383). Pinstrup-Andersen (2009: 6) states: “The term ‘food security’ has been used over time to mean different things . . .” focusing mostly at local and household level. But the concept has been broadened recently to include environmental concerns as well. “Food security may be the defining global challenge of the century . . . The prospect of failing to meet the food security challenge is nothing short of an existential crisis for states around the world and for stable societies . . . But even more than that, it

*is an existential crisis for the planet—because we’re hitting boundaries, as land, water and marine resources are growing more limited”* (Barrett, 2020).

The concept of “food sustainability,” on the other hand, was defined much later, at the time when sustainable development became an overriding objective by the UN with the adoption of the SDGs. Garnett (2013: 29) defines it as follows: “*The global food system makes a significant contribution to climate changing greenhouse gas emissions . . . It also gives rise to other major environmental impacts, including biodiversity loss and water extraction, and pollution . . . In short, more people need to be fed better, with less environmental impact*”. Hence, this definition stresses the relation between the agro-food system and climate change, and the long-term capacity to feed sustainably a growing population.

According to FAO (2021), a sustainable food system delivers food security and nutrition in a way that the economic, social, and environmental bases to generate food security and nutrition for future generations are not compromised. Thus, (a) it is profitable throughout (economic sustainability); (b) it has broad-based benefits for society (social sustainability), and (c) it has positive or neutral impact on the natural resource environment (environmental sustainability). Also, a sustainable food system lies at the heart of the UN SDGs that call for major transformations of the agro-food systems to end hunger, achieve food security, and improve nutrition by 2030.

There is an obvious overlap in the definitions of the two concepts. Both build on common elements, “security” and “sustainability,” with the first putting security upfront while the second puts sustainability first. Hence, it would be useful to trace the origins of the two definitions in the past and discuss how to overcome the impasse.

## Food and Nutrition Security: The Early Period

In mid-1970s, it looked like Malthus’s predictions on the food-population imbalance

and the consequent food shortages and famines were coming true. The food and energy crisis of the 1970s led to significant research on food and energy demand and the establishment of public and private institutions to undertake economic research to address poverty, hunger, and malnutrition.<sup>3</sup> At the same time, a great deal of research at the World Bank was devoted on the causes and remedies of food insecurity (Reutlinger, 1978, 1985). Policy research focused also on specific issues, such as buffer stock operations, international finance of food imports for importing countries in period of shortfall, the rapid increase in feed-grain demand, and other issues of food insecurity (see for example Konandreas et al., 1978). Mergos and Papanastassiou (2017) present a brief overview of the evolution of this debate and its links to present day sustainability issues and policy challenges.

However, the 1980s and 1990s have been a period of unconstrained optimism about global food supplies (Mergos, 1989), with prices of food commodities declining strongly in real terms and optimism about global food-population balances prevailing (World Bank, 1986). The optimism of the 1980s–1990s led to a “dangerous complacency” that was followed subsequently by underinvestment and food output growth slowing behind accelerating food demand (Barrett, 2012; Mellor, 1986).

This optimist view led mainstream thinking to focus on population groups experiencing poverty, hunger, and malnutrition and a shift from global food-population balances to poverty, households, and individuals, following Sen’s seminal research on the causes of famines (Sen, 1981). Sen claimed that traditional analysis of famines concentrating on food supply is fundamentally wrong and misleading for policy and proved that the collapse of entitlements for various reasons is principally the cause of famines, although adequate food supplies may be available close by.

<sup>3</sup> For example, the International Food Policy Research Institute (IFPRI) was established in 1975 as part of the CGIAR system, as well as the Worldwatch Institute in 1974 by Lester Brown and the Earth Policy Institute in 2001.

Finally, the broad interest (global and local) on food and nutrition security research led in 1996 the World Food Summit to adopt the following definition of food security. “*Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life*”. This definition identifies four core dimensions of food security, implicit in the notion of “*secure access to enough food at all the time*”. These dimensions are: (a) Sufficiency of food, defined mainly as the calories needed for an active, healthy life; (b) Access to food, defined by entitlement to produce, purchase, or exchange food; (c) Security, defined by the balance between vulnerability, risk, and insurance; and (d) Time, where food security should be met at all times. Food security in this definition is a complex socioeconomic problem, definitely not an agricultural supply problem, hence requiring cross-disciplinary research activity. In addition, the crucial element of this definition “*at all times*” brings in environmental concerns as well. There have been early efforts to integrate all these dimensions of food security into a conceptual macro-economic framework that builds on the World Summit definition and integrates them into a systems approach (Ecker & Breisinger, 2012: 5).

### **The Tipping Point and the Advent of Sustainability**

The year 2002 seems to have been a turning point. The complacency of the 1980s and 1990s for the global food-population balances has given way to serious concerns about food security globally. Food prices in real terms started an upward trend in 2002 with higher volatility and spikes (Haniotis, 2017). Furthermore, the food price crisis of 2007–2008 drew significant attention on food security, raising concerns that extreme events may become more frequent in the future. However, even before the crisis it was obvious that food insecurity was becoming a recurring theme, with one billion people remaining in

extreme poverty and hunger, despite global affluence, strong international aid, and technical assistance (Collier, 2007).

Price volatility affects household incomes and purchasing power and, thus, food security. In fact, price levels and volatility are interrelated in determining food security, with higher price volatility implying a strong negative welfare impact for consumers. With volatility being the normal state of agricultural markets, several possible causes of volatility are offered, such as a decline in food demand elasticity, trade policies, investment dynamics, and speculation. With a universal increase in incomes, food demand is less price-sensitive, leading to higher volatility. Restrictive trade measures adopted by many countries to protect consumers during periods of crises probably contributed to the observed price spikes. The recurrent nature of food crises (in the 1950s, 1970s, and 2000s) is related, perhaps, to the dynamics of investment and trade, or to speculation in the future markets and the formation of price bubbles. Finally, increasing affluence in emerging economies boosted imports of food, mainly feed-grains, leading to price hikes and volatility across world agricultural commodity markets.

However, it was Stern who raised public awareness about the consequences of climate change, and the need for immediate mitigating actions (Stern, 2006). Then, the nexus between food security, climate change, and sustainability became the big issue generating global concern (Godfray et al., 2010). It should not be overlooked, however, that although production of main grains and root crops increased only modestly over 50 years from 1960 to 2010, production of coarse grains increased by almost three-fold implying that meat demand drives the food system. Globalisation may have played an important role by increasing affluence for a large part of the global population, thus changing food consumption habits towards foods of animal origin, bringing structural changes in global production and trade patterns, significantly affecting population well-being globally.

These developments have induced a profound shift in research and policy thinking worldwide.

Several studies focused on the impact of climate change on the agro-food system and concluded that continuation of present policies would have serious adverse effects on food security (Nelson et al., 2010). However, global studies, although extremely useful for general policy guidelines, do not answer food security and nutrition policy questions at household level, where action is needed most (van Wijk, 2014).

At the same time, the emphasis on sustainability of the agro-food system research was increasing fast. For example, Foley et al. (2011: 342) concluded, “... *increasing population and consumption are placing unprecedented demands on agriculture and natural resources ... To meet the world's future food security and sustainability needs, food production must grow substantially while, at the same time, agriculture's environmental footprint must shrink dramatically*”. In addition, researchers from various fields started working on the global food system, cautioning about the significant contribution of the agro-food system to various environmental and health concerns (Garnet, 2013).

### **Food Security and Sustainability: Two Complementary Concepts**

The issue of sustainability is elevated today at top global policy levels. The 2020 annual meetings of the World Economic Forum in Davos put climate change as the top global issue for governments and business alike. Barrett (2020) considers the two, climate change and food security, closely intertwined and suggests: (a) accelerating agricultural adaptation to climate change, water scarcity, and soil health in food production; (b) boosting food safety nets for the world's poorest people; (c) enhancing mineral and vitamin availability in staple foods and especially by promoting greater access to vegetables, fruits, and animal-source foods; and (d) reducing the number of areas of conflict around the world.

Nevertheless, during the 2010s, a voluminous literature has focused on sustainability, also including food sustainability. A large part of this literature is published in health science and policy

journals, while earlier work on food and nutrition security appeared mostly in economic and development journals. Perhaps this reflects an increasing attention on changing food consumption patterns and their implications on health and the environment. For example, increasing attention is given to the fact that now there are more overweight and obese than underweight or malnourished people in the world. As a result, there have been strands of literature that address the two concepts, food security and food sustainability, mostly as overlapping, or perhaps competing paradigms, although sustainability concerns are included in both.

We sample a few papers to show this dichotomy. Smith and Gregory (2013) treat the two concepts as overlapping, while Morawicki and Diaz Gonzáles (2018) avoid referring to food security and stress only sustainability and human behavior. On the other hand, Berry et al. (2015) argue that sustainability should be part of the long-term time dimension in the assessment of food security and suggest that without integrating sustainability as an explicit (fifth) dimension of food security, current policies and programs could become the very cause of increased food insecurity in the future. Capone et al. (2014), focusing on Mediterranean diets, argue that a sustainable food system supports food security, and that food and nutrition security is a cornerstone of sustainable diets and food consumption patterns. However, the most extreme example is Lang and Barling (2012: 318–319) who consider the two as competing paradigms, an “old” one (food security) and an “emerging” one (food sustainability). Their analysis classifies eleven points of focus for each paradigm stressing differences between them. However, all their points are difficult to accept, leaving the reader with the impression of a “half-true situation”.

El Bilali et al. (2018) abstain from treating food security and food sustainability as competing paradigms. They claim that treating the two concepts as competing paradigms in the food system discourse, “*disconnects and hinders a coherent discussion of sustainability transitions, which will be necessary to solve problems (environmental, social, economic, and health)*

*generated by conventional food systems*” (El Bilali et al. (2018: 1). Their review highlights the linkages that exist between sustainability transitions, and food and nutrition security in the context of sustainable food systems. El Bilali (2019) using a meta-analysis of 771 published research papers as of January 2018, directly tackle and assess the issue of the two different paradigms. They suggest that creating sustainable food systems requires a shift of focus from an agriculture-centered analysis focusing on supply to a food-system policy and research framework which is a complex socioeconomic issue. However, “food security at all times” (as defined by the World Food Summit of 1996) is not an agricultural supply problem, but a complex socioeconomic issue, which has attracted strong multi-disciplinary research efforts for decades.

The work on the performance of global food systems at OECD follows a balanced approach emphasizing sustainability of the food system as a whole. The OECD approach integrates the concepts of food security and sustainability into a “triple challenge” framework: (i) achieving food security and nutrition; (ii) providing livelihoods along food chains; and (iii) ensuring environmental sustainability (OECD, 2013). For policy purposes, the OECD approach recognizes trade-offs and synergies between these three different objectives that need to be carefully managed (OECD, 2020).<sup>4</sup> According to OECD, the formidable “triple challenge” consists of a requirement to ensure food security and nutrition for all, a second requirement to provide livelihoods to farmers and others in the food chain and promote rural development, and a third requirement to do all this while ensuring environmental sustainability, with policy synergies and tradeoffs among the three dimensions. (OECD, 2021: 15). The bottom line of the OECD approach is that “*The global food system needs a revamp—in*

<sup>4</sup> This “triple challenge” framework is also the way that the EAT-Lancet report and the FAO Future of Food & Agriculture report consider the issue, but the OECD work makes it more explicit and highlights that there are synergies (without silver bullets) and trade-offs (no free lunch) in achieving policy coherence.

*policies and institutions as well as on social, business and technology fronts*" (@OECDagriculture, Twitter, August 31, 2021).

### **The Increasing Importance of International Trade and Globalization**

Food self-sufficiency has gained increased attention as a strategic policy objective in several countries in the post-war period and later in wake of the 2007–2008 international food crisis, as countries sought to buffer themselves from price volatility on world food markets. But food self-sufficiency as a policy objective is the direct opposite of international trade in food and is widely criticized as the wrong approach to food security placing political priorities ahead of economic efficiency (Clapp, 2017). The importance of international trade and of international buffer stocks in addressing food security challenges has been considered early (Sarris & Taylor, 1976; Valdes, 1981). However, there is an ongoing debate whether international trade is an opportunity or a threat for food security (Clapp, 2015). For some, trade, i.e., moving food, often across borders, from surplus production areas to deficit ones at prices that low-income consumers in food deficit countries can afford, is an excellent buffer for domestic fluctuations in food supply (see Gillson & Fouad, 2015). For others, world markets remain highly distorted due to trade distorting policies in more developed countries, which in addition to creating strong volatility in international markets, has strong adverse effects on the economic viability of food production and on rural livelihoods in less and least developed countries, thus adversely affecting food security.<sup>5</sup> Nonetheless, agricultural commodity trade, international investments, and globalization become increasingly important for food security, in particular in a growing number of food-importing countries after the 2000s (McCullough et al.,

2008). Since 2000, trade in agro-food products has grown strongly, in fact more strongly than in the preceding decade at close to eight percent in real terms annually between 2001 and 2014, as compared to two percent between 1990 and 2000.<sup>6</sup> This increase in trade volume has, no doubt, implications on food prices and food security in food importing countries.

Agricultural prices since 2000 exhibit increasing trends and higher volatility, reversing a decline of nearly three decades. The FAO Real Food Price Index hit a record high in May 2021 (the last one was in 2011), almost 40 percent higher than in May 2020.<sup>7</sup> The 2021 increase may be due to the COVID-19 pandemic, but increasing trends and volatility since 2000 may be attributed to the unprecedented income growth in emerging economies, with less and least developed countries averaging annual income growth rates above six percent between 2004 and 2013, the highest of any ten-year period since 1960 (Haniotis, 2017). Incomes in China and India, accounting for more than a third of world's population, grew during the same period at nearly ten percent per year, with strong global impact in food commodity markets. There is also increasing evidence of strong presence of less and least developed countries in agro-food Global Value Chains (GVCs) (Papanastassiou & Mergos, 2017). Hence, globalization brings a new, important dimension in food security considering in addition to resource constraints and sustainability, the context of global economic and social transformation within a nexus of "food security, sustainability, and globalization".

For example, total agri-food trade in the Southern and Eastern Mediterranean Region (SEMED) has grown rapidly, increasing four-fold within a ten-year period (2002–2013),

<sup>5</sup> See for example <http://www.oecd.org/agriculture/news/government-policies-providing-more-than-usd-500-billion-to-farmers-every-year-distort-markets-stifle-innovation-and-harm-the-environment.htm>

<sup>6</sup> Agro-food trade is becoming 'global' leading to deeper integration of the world's food system. A growing share of agro-food trade takes place in global value chains spread over several countries, linking agro-food sectors with the rest of the economy across the world; see <https://www.oecd.org/agriculture/topics/agricultural-trade/>, accessed on September 3, 2021.

<sup>7</sup> See <http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/449297/>

reaching almost 100 billion USD in 2013, with 64 percent of that being imports, mainly grains, and the rest 36 percent being exports, mainly high value products (FAO, 2015). The SEMED countries, apart from Turkey, have large and widening agri-food trade deficits. Increasing value of food trade deficits are mainly due to increasing volume of grain imports, but also to higher grain prices in the international market. Thus, grains are the most important element in agri-food imports and with food consumption trends continuing, will remain so in the future. Hence, the high import dependency of many less and least developed countries on grain will probably continue in the future. In addition, if grain prices in international markets continue rising, financing grain imports would become a serious concern for food-importing countries.

In Africa, despite the region's vast agricultural production potential, food insecurity is increasing. Although less pronounced in Northern Africa, food insecurity is accelerating in sub-Saharan Africa with a quarter of population undernourished (FAO & ECA, 2018). With the region being a net food importer over the last three decades, imports ensure food security. Interestingly, most of Africa's trade is with countries outside the region, while intra-African trade is only about ten to 20 percent of the total. Regional integration and the establishment of an African Continental Free Trade Area (AfCFTA) will accelerate growth and sustainable development aiming at doubling intra-African trade and tripling agricultural trade by 2023.<sup>8</sup> However, in the context of increasingly volatile world food markets, increasing productivity of smallholder food production and promoting intra-regional trade of food commodities may be preferable for increasing Africa's food security (Sarris & Morisson, 2010).

After 2000, Africa and some other parts of the world have experienced large-scale land acquisitions (known as land-grabbing) by a wide

range of private and public actors, including sovereign governments, due to concerns on food security and fuel supplies. This has come to the detriment of the populations and has led to increasing tensions with local communities who suffer from dispossession of land and natural resources (Batterbury & Ndi, 2018). The current controversy about land-grabbing has put land rights issues and responsible agricultural investment on the development agenda and has raised questions about responsible investment in agriculture, so that the land rights and livelihoods of small farmers and other vulnerable groups are respected (Liversage, 2010). For example, it is reported that over four million acres of most fertile land with unlimited water supply were sold or leased in Sudan over the course of eight years to foreign agribusiness companies from various countries to produce soybeans, cotton, maize, sunflowers, and wheat (Elzobier, 2014). The international community has responded by issuing guidelines promoting good land governance and responsible investment in agriculture (Liversage, 2010).

The "right to adequate food" is recognized as a fundamental human right to be upheld by states as duty bearers in the 1948 Universal Declaration of Human Rights, which also underscores the indivisibility and interdependency of all human rights. States have the duty, obligation, and responsibility to respect, protect and fulfil human rights, including the right to food, under international law (HLPE, 2020: 5). In many countries the right to food is enshrined in the constitution as, for example, in Ethiopia (article 90), India (article 47), Guatemala (article 51), etc. Further, "food sovereignty" is a term coined by Via Campesina, a global activist movement against globalization, as an alternative to food security in the 1990s, stressing the right to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and the right of people to define their own food and agriculture systems. The movement asserts that the people who produce, distribute, and consume food should control the mechanisms and policies of food production and distribution. It fights for

<sup>8</sup> See "Intra-regional trade, a key driver of food and nutrition security in Africa – FAO committed to advancing greater trade among countries on the continent"; see <http://www.fao.org/africa/news/detail-news/en/c/1200150/>

women's rights, is against free trade, land-grabbing, production of biofuels, Genetically Modified Organisms (GMOs), multinational corporations, and global institutions, and calls for transforming the dominant economic and social model of the agro-food system.

Finally, the COVID-19 pandemic has shown vividly the importance of globalization for food security. The pandemic is already affecting food systems globally. Restrictions on the movement of goods within and across countries disrupt food supply chains and affect food availability. In addition, restrictions on agricultural labor movements and on input supply pose critical challenges to food production, thus jeopardizing food security, especially in the least developed countries. Alarmed, international organizations are mounting special efforts to keep food supply chains safely running to ensure food security, despite restrictions and income losses.<sup>9</sup>

Further, the COVID-19 pandemic increased hunger and has made the global UN-SDG commitments to end world hunger and malnutrition in all its forms by 2030 more challenging and difficult to achieve. The Prevalence of Undernourishment (PoU) Index that remained unchanged for five years increased in one year by 1.5% from 8.4% to 9.9%, implying that about 800 million people faced hunger globally in 2020 (FAO, 2021). A recent International Food Policy Research Institute (IFPRI) report concludes that the pandemic highlighted and often exacerbated weaknesses in food systems at local, national, and global level and has put meeting the SDG objectives by 20,230 off track (IFPRI, 2021). The UN Food Systems Summit 2021 aims to bring forward a series of concrete actions that people from all over the world can take to support a transformation of the world's food systems and address the global challenges of hunger, climate change, poverty, and inequality (United Nations, 2021).<sup>10</sup>

<sup>9</sup> See for example <https://www.worldbank.org/en/topic/agriculture/brief/food-security-and-covid-19>; <http://www.fao.org/2019-ncov/en/>; <https://www.ifpri.org/covid-19>

<sup>10</sup> See <https://www.un.org/en/food-systems-summit>

## Population Dynamics and Food System Sustainability

The food system is highly complex and driven not only by absolute population growth, but by several other factors, broadly named with the term “population dynamics”. A better understanding of these drivers and their interaction could be very helpful in choosing public policy instruments to attain food system sustainability. Population growth is a major determinant of food demand. Global population will probably grow from an estimated seven billion in 2011 to 9.7–9.8 billion in 2050 and there will probably be a need of feeding sustainably eleven billion people at the end of the century. However, although population growth in absolute terms is a key driver of changes in demand for food and agricultural products, population dynamics include also absolute growth differences across countries and regions, as well as changes in age structure and urbanization. This section discusses global trends as determinants of the food-population balance and sustainability of the agro-food system. It starts with a discussion of the demand-side of “the food equation” and continues with the dynamics of the supply-side and the changing agricultural and food systems. Finally, the last sub-section discusses land and water resource constraints at global level, the growing concern for climate change, and the need for building a sustainable and resilient agro-food system.

### Population Dynamics and the Food Demand-Side

Population growth is a major determinant of food demand. Absolute population figures have, naturally, a strong impact on food demand, but population growth differs substantially across regions, leading to quite different patterns of food demand across the globe. Although global population growth is slowing down, Africa and Asia still experience large increases in their absolute population figures. Global population growth figures will decline, but there are significant differences between countries, mainly between the more, less, and least developed countries. While more

developed countries would reach their maximum population size by 2040, the less and least developed countries would see only slow declines in population growth over the medium and even the longer term (United Nations, 2019b).

There are considerable differences in population growth across regions. Asian population would peak between 2050 and 2060, while Latin America will reach a maximum around 2060 and Middle East and North Africa around 2080. In Africa, despite decelerating population growth rates, population will continue increasing, reaching more than 2.2 billion by 2050 and more than four billion by 2100 (United Nations, 2019b). For example, Niger, a country with a population growth rate at 3.75 percent, among the highest in the world, will have its population expanding (in the medium scenario) from about 20 million in 2019 to 72 million by 2050 and over 200 million in 2100. Without employment opportunities, this young population increase will lead, most probably, to outmigration to urban areas and abroad.<sup>11</sup> Hence, although the food-population balance is expected to stabilize in most parts of the world within the twenty-first century, sub-Saharan Africa will experience a strong impact on food demand and a major disruption of the food-population balance, putting at high-risk food security. Further, as sub-Saharan countries rely significantly on agriculture for employment and income generation, population growth may have a serious impact on their overall economic development prospects (United Nations, 2019b).

Global population is not only growing but changing the rural-urban and age structures as well, with important implications not only on food consumption patterns, but also on the operation of food supply chains. Urbanization and population aging bring radical changes in the operation of food supply chains, increasing the need for efficiency. Today more than half of the

global population is urban and the urban population is expected to reach about two-thirds of the total population in 2050. Furthermore, global population projections show a net reduction of rural populations taking place by 2050, implying not only an outflow from rural to urban areas, but also changes in living conditions, behavioral patterns, and life expectancies as well.

Urbanization leads to strong economic, social, and behavioral changes, strongly affecting food consumption patterns. There are, however, significant differences in urbanization rates across regions, with Latin America the most urbanized (United Nations, 2019b). The absolute size of urban populations in the least developed countries is, perhaps, the most important determinant of the medium-term global population dynamics. Over the next decades, old age dependency will increase further, but will level off later. The world is expected to be in the medium term not only more populous and urban, but also demographically much older, with significant impact on food consumption patterns.

The third major determinant of food demand is the growing affluence of large parts of global population. Higher incomes induce changes in food consumption patterns, increasing demand for animal products, fruits, and vegetables, as well as processed foods. This is known in the literature as “dietary transition” linked to household behavioral changes induced by higher household incomes, urbanization, and the cultural changes associated with them (Garnett, 2013). Rural-urban wage differentials tend to induce higher participation of women in the labor force and influence labor allocation within the household, by increasing the opportunity cost of home-produced food and favoring food prepared outside the household (Mergos, 1989).

This shift in consumption patterns also means a shift in employment away from food production, such as processing transport, wholesaling, and retailing. In more developed countries at least, current food consumption patterns contain more food prepared away from home and more convenience items. As a result, diets have more fat, salt, and sugar, and are more energy-dense with severe health implications. For example,

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<sup>11</sup> Although population policies, such as family planning, might help reducing migration flows, more important are public policies that promote employment and income earning opportunities, especially in rural areas (United Nations, 2019b).



there are now more overweight and obese than underweight or malnourished people in the world. There is growing concern that food consumption patterns in less developed countries follow apace those of more developed countries. Hence, excessive consumption, particularly of high-impact foods such as meat and dairy products, is a leading cause of the environmental crisis we face, arguing that by 2050, livestock sector growth could push the planet to the point where humanity's biological existence is threatened. This approach links health and environmental agendas and strongly emphasizes the diet-related chronic diseases, arguing that largely plant-based diets are better for both health and the environment (see Barrett, 2010 for an extensive discussion of the issue and an extensive review of the evidence). The policy prescription of this approach is the concept of sustainable food consumption or sustainable diets.<sup>12</sup>

A fourth major determinant of food demand, linked also to growing affluence, is the rapidly growing demand for meat and livestock products, and subsequently for feed-grains. Affluence is shifting consumption patterns with rapidly increasing demand for livestock products, thus fueling demand for feed-grains and other feeds shifting global production and trade patterns from food-grains to feed-grains. Middle class consumption patterns in emerging economies exercise a strong impact on global food balances. The observed rapid increase in direct demand for meat, milk, and other livestock products leads to a much stronger indirect demand for grains used as feed in animal production to satisfy the rapidly growing demand for livestock products (Mergos, 1989). Such trends have a strong impact on world trade and commodity markets and food prices. Increasing grain prices in world markets, due to rapid feed-grains demand, leads to increasing all agricultural prices because there is strong

evidence that there is a co-movement of agricultural prices indicating that global commodity markets tend to crash (boom) together during extreme events (Yuan et al., 2020).

The example of China is revealing. The historic economic and social transformation of China over the past decades had, and will continue to have, huge implications on global food commodity markets. Over the 1978–2012 period, consumption of livestock products increased more than five times, fuelling demand for feed-grains (Yuanyuan & Changhe, 2019). Grain production almost doubled over the period 1978–2012 enabling a high self-sufficiency ratio, at the expense, however, of importing other crops/products, which compete for land (OECD-FAO., 2013). It is noteworthy that since 2008 China started having a net trade deficit in both wheat and feed-grains and in 2017 feed-grains imports, according to USDA data, increased to the staggering 17 million metric tons, almost ten percent of world total feed-grains imports. These trends are expected to continue in the future. Projections of consumption to 2030 show an increase in per-capita consumption of livestock products by about 25 percent, as compared to 2017, increasing feed-grains consumption by 31 percent, from 323 million metric tons in 2017 to 424 in 2030 (U.S. Department of Agriculture, 2018). Similarly, projections of food-grain consumption show a decline from 230 million metric tons in 2017 to 226 in 2030 (Yu & Cao, 2015). With China's increasing integration in world markets, the impact of such trends on world grain and other agricultural commodity markets and on global food security will be, no doubt, significant.

The observed rapid increase in feed-grains demand is a universal economic trend and it is explained as the result of changes in factor use during economic growth. In the course of economic development and GDP growth, sectoral transformation of the economy, capital accumulation, and labor outflow from agriculture lead to a structural shift in livestock production towards capital intensive techniques of production that are also grain intensive. This leads to higher use of feed-grains, lower use of traditional feeds, and a

<sup>12</sup> Sustainable diets are those that feature low environmental impact and contribute to health and nutrition. For a complete definition of a healthy and sustainable diet, see <https://www.barillaefn.com/en/magazine/food-and-sustainability/12-recommendations-for-a-healthy-and-sustainable-diet/>

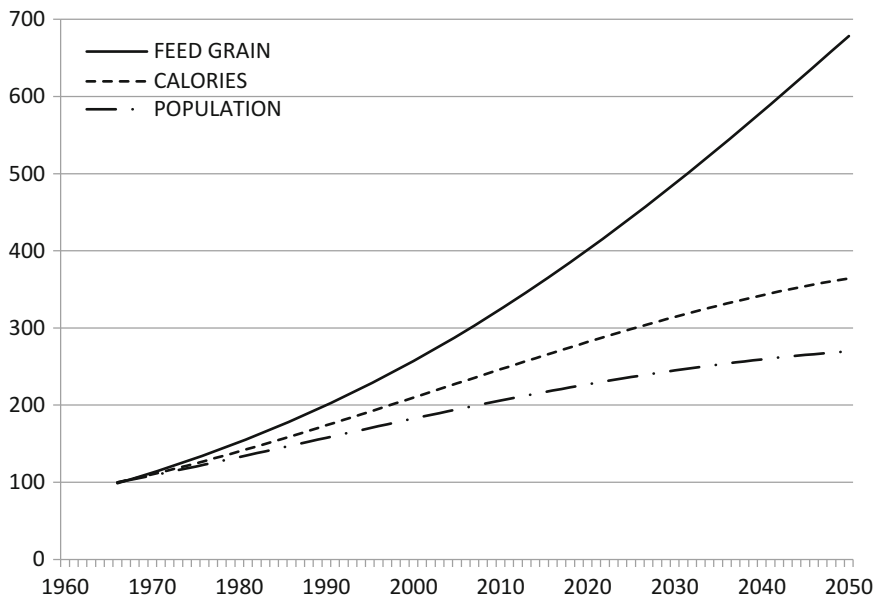
changing composition of output implying long-term prospects for very high growth in feed-grains use in the world (Mergos & Yotopoulos, 1988). Therefore, consumption trends and growing affluence of large parts of the global population have a strong impact on future feed-grains demand, much higher than on the demand for other foods. Hence, world feed-grains demand is projected to grow rapidly, reaching in 2050 a seven-fold increase compared to 1966, much higher than for any other food item (see Fig. 7.1), with strong adverse effects on global food security.

### Population Dynamics, Food Supply, and Changing Agro-Food Systems

Focusing on the supply-side of the food-population balance, projections show that food and feed production will need to increase at least by 70 percent by 2050 to meet the world's food needs (United Nations, 2019a). Looking into the past, supply has been generally successful over the second part of the twentieth century in

keeping up with food demand. The major factors involved in increasing supply are adoption of new technologies, increasing yields, and improved efficiency. The ability to meet the world's food needs in 2050 depends on the ability to increase yields and speed up total factor productivity through the diffusion of technical change in agriculture and through higher efficiency. Increasing yields is perhaps the most important way of increasing productivity and a major part of increased supply should come from increased yields. If yield increase is not sufficient, there will be pressures for expanding production area, with adverse environmental impact.

During the second half of the twentieth century, yields of major food commodities increased significantly, changing completely the food supply situation in many parts of the world. *Green Revolution* is the catchword describing a package of “research, development and technology transfer mechanism” in agricultural production that took place mainly in the 1950s and 1960s, diffusing the high yielding varieties of wheat, rice, and maize. This technology package improved food and income conditions of at least one billion



**Fig. 7.1** Three indicators of world food demand (1966 = 100). (Source: Mergos & Papanastassiou, 2017: 6)

people by changing food production technology, combining high-yielding varieties of cereal grains with irrigation, modern management techniques, hybrid seeds, and chemical technology of fertilizers and pesticides. In addition, yields vary substantially across the world. This “yield gap” is attributed mainly to delays in adopting high yielding varieties and new technological innovations. Closing the yield gap offers a great potential to increase food output across the world without undue pressure on resources. A study estimated that increasing yields of important crops up to their present potential would increase global production by about 60 percent, thus meeting to a large extent food demand in 2050 (Foley et al., 2011).

Increasing agricultural productivity and diffusing technical change is closely related to economic growth and to the structural transformation of the economy, with significant shifts in employment and production across economic sectors. Industry and services become dominant in the economy with the share of food production declining steadily in GDP and employment. The outflow of labor from rural to urban areas is an important component of the economic transformation that takes place as the economy develops. This labor reallocation from less productive to more productive sectors of the economy is an important consequence of economic development during which the importance of agriculture for income and employment generation declines relative to other sectors. The process leads to an outflow of labor from food production to other economic activities and a transformation of the economy from an agriculture-based to a non-agriculture-based economy in many parts of the world, fueling large-scale rural-urban migration and a transformation of the agro-food supply chain.

Pivotal for stimulating the labor outflow from agriculture or from rural areas where agriculture is the dominant economic activity, are technical change, increasing mechanization, and labor-saving technologies in agriculture. Agricultural innovations, such as the diffusion of new mechanical agricultural technologies, as well as the introduction of improved tools and of other

labor-saving technologies, increase productivity and agricultural output allowing in this way a labor outflow from agriculture to other economic sectors. On the other hand, land-saving technologies, such as high-yielding varieties, chemical technologies (fertilizers and pesticides) and irrigation increase productivity and yields, and therefore food output, thus allowing parts of the agricultural labor force to move out of agriculture. These are generally known as “push factors”, stimulating labor outflow from agriculture.

Productivity has been a major instrument in attaining strong food output growth in the second half of twentieth century. An important determinant of world’s food supply in 2050 will be maintaining or increasing the rate of agricultural productivity. High levels of productivity require significant investments in agricultural research and extension across the world. Total Factor Productivity (TFP), a widely accepted measure of productivity growth, is defined as the amount of output produced per unit of total inputs. A study that covered five inputs (land, labor, tractors, head of livestock, and fertilizer) concluded that global agricultural output growth was 2.2 percent per year over a 50-year period since 1960 and only half of that output growth was due to higher use of inputs (Fuglie, 2019), the rest being attributed to productivity growth. However, due to the long-time lag that exists from initiating research to actual use of new technologies in the field, investments and research efforts need to be initiated early to have an impact on productivity by 2050.

In addition, labor outflow from agriculture stimulates major changes in the agro-food supply chain. Although demand for labor declines in food production, it increases in other parts of agro-food supply chain, such as transport, input supply, processing, and retail. While a shift from subsistence agriculture to an efficient market-based agro-food system is complete in certain parts of the world, almost one third of the world population relies on subsistence agriculture and on own produced food. Hence, central to the transformation of the agro-food system due to labor outflow from agriculture is boosting

productivity in food production and improving efficiency of food value chain.

Finally, reducing food loss and waste along the food supply chain will improve the food-population balance significantly, because one third of the world's food is lost or wasted every year due to a multitude of factors (HLPE, 2014). Loss and waste vary according to the type of commodity, harvesting and storage technologies at farm level, the nature and length of the supply chain, the quality and quantity of infrastructure along the supply chain (storage type, drying methods, product handling and preservation techniques, transport, and distribution systems), as well as social and cultural consumption habits of the population. While the main problems in individual situations are generally known, a systematic assessment of the magnitude of the problem at global level does not exist. In addition, much less is known about qualitative losses such as deterioration of nutritional quality and consumer acceptability of spoiled products, because they are subjective and difficult to measure.

### **Resource Constraints, Climate Change, and Food Sustainability**

The impact of the agro-food system operation on the environment and on climate change is surprisingly strong. In addition, climate change affects production capacity of global agro-food systems, putting at risk meeting future food demand. Global population dynamics and changing food consumption patterns exercise an increasing pressure on global natural resources (land and water) and on biodiversity, especially in areas with traditional agriculture systems. In addition, although meat is an important component of human diet as a rich source of essential nutrients, the sustainability of meat production has recently come under strong scrutiny, as a result of the negative implications of livestock farming and meat consumption on greenhouse gas emissions (GHG) and human health, respectively. As a result, the climate change impact of the agro-food system is surprisingly strong, implying a need for transformation of its operations to meet

GHG targets. During the past 50 years, humans have changed ecosystems more rapidly than in any other period of human history largely to meet rapidly growing and changing food consumption patterns (Millennium Ecosystems Assessment, 2005).

It is widely accepted that food production is facing a growing land and water scarcity. Although agriculture at the global level has become more efficient, competition for natural resources has intensified and could lead to over-exploitation and unsustainable resource use. This will result in degrading the environment, undermining the long-term productive capacity of the resource base, and threatening living conditions of billions of rural people. Globally, there are few opportunities left for further expanding agricultural land. Moreover, much of the additional area available is not suitable for agriculture. Bringing that land into agricultural production would carry heavy environmental, social, and economic costs (FAO, 2014b). In addition, food production is a heavy water user and water scarcity will become a growing constraint. Water use in food production amounts to 70 percent of total use but is uneven across regions and countries. In areas with low rainfall, agriculture puts a strong pressure on water resources, using up to 80 or 90 percent of available water with serious depletion of rivers and aquifers.

Due to the above constraints, expansion of land under irrigation is slowing down. In addition, water use gradually shifts away from agriculture to meet increasing urban needs. Finally, pressure on water resources is driven not only by changes in demand, but also by changes in climate. Rainfall and temperatures become more variable, with prevalent floods and droughts having strong adverse impact on rain fed smallholder farming systems in highland areas and in the tropics, which account for 80 percent of the world's cropland and produce about 60 percent of global agricultural output (FAO, 2017: 38). Therefore, given the above resource constraints, increases in food production to meet growing food demand will have to come mainly from improvements in productivity and resource-use efficiency.

Degradation of common property resources is a recent, but alarming global concern. There is a need to build resilience and sustainability of global agro-food systems that can sustainably meet future food demand and contribute to the goal of sustainable development. The greenhouse gas (GHG) emissions of the agro-food system are substantial, but estimates vary considerably. Recent estimates suggest that the agricultural sector accounts for eleven percent of GHG emissions, with that share doubling once land use change is factored in agriculture, and the agriculture, forestry, and other land use is responsible for 21–37 percent of total anthropogenic GHG emissions (see IPCC, 2019, Table SPM 1).

Overall, sustainability, resource efficiency, and climate change are three intertwined challenges for the agro-food system. Resource constraints and climate change undermine the operation of the agro-food system, especially in less developed countries where poverty, hunger, and malnutrition are most prevalent. To address these challenges policies are needed that aim to increase in a sustainable way agricultural productivity to meet global demand, adapt the agro-food system to climate change, and reduce GHG emissions. To this end, concerted and coherent policy effort is required at national and international levels to sustainably increase agricultural productivity, strengthen capacity of rural areas to adapt and reduce food system GHG emissions, and achieve food system sustainability. We investigate this in the next section.

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## Policy Challenges

Population dynamics play a very important role in food sustainability, linked to all stages of the agro-food system, having significant interaction with climate change. Therefore, over the next three or four decades, the issue of food system sustainability will get increasingly complex, because it should be considered not only within the context of resource constraints and climate change, but also within the context of an accelerating economic and social transformation. Addressing these challenges will require a

perspective on the agro-food system as a whole, i.e., “*all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socioeconomic and environmental outcomes*” (HLPE, 2017: 23). The relevant literature is huge and overlapping in many respects, hence any review effort is by necessity eclectic.

There have been many systematic efforts addressing policy challenges. A World Resources Institute Report (World Resources Institute, 2019) proposes a strategy with five priorities: (a) Reducing growth in demand for food and agricultural products; (b) Increasing food production without expanding agricultural land; (c) Exploiting reduced demand on agricultural land to protect and restore forests, savannas, and peatlands; (d) Increasing fish supply through improved wild fisheries management and aquaculture; and (e) Reducing greenhouse gas emissions from agricultural production. A comprehensive IFPRI study (Nelson et al., 2010) used a detailed global agro-food model and two climate scenarios to assess the impact of climate change threat on food security. It concludes that policymakers should put emphasis on: (a) broad-based sustainable development; (b) investments to enhance agricultural productivity; (c) open world trade; and (d) the need for early action on both climate change adaptation and mitigation. There are several other comprehensive studies examining policy priorities for addressing sustainability issues of the food system. The Food and Climate Research Network (Garnett, 2008, 2013) identifies three challenges for addressing the task of “*feeding more, with less environmental impact*”. These are: (a) A production challenge, which requires improving the unit efficiency of food production; (b) A consumption challenge, which requires changes to the dietary drivers of food demand; and (c) A socioeconomic challenge, which requires changes in the operation and governance of the food system. UNEP presents a coherent Collaborative Framework for Food Systems Transformation that recommends key activities across the food system for accelerating

the transition to sustainable food systems. The framework makes the concept of sustainable production and consumption operational and explains how different stakeholders can support governments in advancing a systemic transformation towards sustainable food systems (UNEP, 2019).

A key lesson learned from reviewing the literature in addressing the nexus of “population, climate change and agro-food system” for climate change mitigation and other objectives such as food security, is that these are complex problems, impossible to solve by a single stakeholder or sector, and *policy coherence* is required (OECD, 2021). Issues of synergies and trade-offs should be examined because interactions are complex. For example, policy recommendations to adopt diets with a limit on consumption of red meat could reduce demand for ruminant meat and could be a benefit in terms of lower emissions (a synergy). However, policies that lead to lower livestock production could also reduce protein availability in regions where it remains low (a trade-off). Likewise, paying for public goods could benefit the environment and simultaneously support farm incomes, but pricing natural capital according to its social cost could lower incomes, at least in the short term. A systematic consideration of synergies and trade-offs across the entire agro-food system can contribute to more coherent policies requiring co-ordination by policymakers. Furthermore, there is an international dimension, for example, through international trade in agricultural products or through global environmental externalities. This global dimension increases the “demand” for policy coherence but at the same time makes it more difficult to “supply” policy coherence (as coherence now needs to be defined across many jurisdictions, and hence is not limited to a single set of decision-makers). The core concept of this approach is that of *coherent policies*—where the design of different policies takes into account relevant interactions and coordination and calibration take place to achieve a desirable policy mix at the international, national, and sub-national levels (OECD, 2020).

With these caveats in mind, policy measures fall under the following priorities: (a) managing

demand and reducing waste; (b) increasing supply by increasing efficiency and productivity sustainably; (c) addressing socioeconomic and governance challenges of the agro-food system; and (d) establishing measurement methods and early warning systems for evidence-based policy decision making.

### **Policies Managing Food Demand and Reducing Waste**

Policy measures in this priority include intensifying population policies, changing diets, reducing food loss and waste along the agro-food supply chain, and increasing research efforts on behavioral preferences.

Population dynamics, as discussed above, play a leading role in determining food population balances, and more so in regions that have not yet experienced the demographic transition. Hence, population policies aim to bring fertility down to replacement levels is an important policy concern (Bongaarts, 1994; May, 2012). Even if it were possible to stabilize food consumption per capita, each additional person has nutritional needs and, thus, would cause total food demand to increase (United Nations, 2019a).

Increasing agricultural productivity will not only improve food-population balances in food deficit countries but will also release agricultural labor to non-agricultural activities with wider development effects, stimulating general economic growth, inducing urbanization, changing behavior, and reducing fertility. Research shows that child labor is used as input in farming activities in peasant farming (see Mergos, 1992; Yotopoulos, 1983; Yotopoulos & Mergos, 1986). Due to this complementarity between adult and child labor, policies that increase agricultural productivity or offer income-generating opportunities for peasant households reduce demand for child labor and are conducive to changing fertility behavior.

Further, there is a growing conviction that excessive consumption, particularly of high-impact foods such as meat and dairy products, is a leading cause of the environmental crisis we face, while overconsumption and obesity are

common problems of industrial societies. With large parts of the global population in less developed countries copying Western food consumption patterns, demand for livestock products fuels demand for grains many times more than simple population growth rates, with a strong impact on world food commodity markets, as analyzed earlier, and on the environment. The policy prescription is to reduce the share of animal products in food consumption with both environmental and health benefits.

Food loss and waste along the food supply chain is estimated at one third of total agricultural production (HLPE, 2014). With increasing urbanization, reducing loss and waste along the food chain is becoming a high priority, because it effectively increases food availability. In many less developed countries, significant quantities of food are lost before they reach consumers, due to inadequate storage systems, poor harvesting practices, and pests. Identification of the magnitude and location of food loss and waste along the food supply chain is needed for better targeting of policies and should go together with a public awareness campaign on food, nutrition, and health issues targeted to all stakeholders. Similarly, improving food-marketing infrastructure from farm to retail is of high importance. Credit products for private traders at various stages of the agro-food value chain to improve and expand facilities, besides having a strong food saving impact, may have a strong economic and social dividend as well (HLPE, 2014).

Finally, technological improvements alone, most probably, will not suffice. Research is needed on food diets and consumer behavior for reducing waste at the household level, as well as on the operation of markets and distribution channels for increasing market efficiency. But changing behavior is quite a difficult task. Understanding consumer behavior is, also, an important step in learning how to prevent food crises and how to provide effective emergency food aid and relief. Furthermore, understanding market behavior is quite important for preventing food crises, especially sharp price spikes.

## **Policies Increasing Supply by Increasing Productivity Sustainably**

As the global population is growing and urbanizing, the workforce engaged in food production is declining with large parts of the population becoming net consumers. To meet increasing food demand sustainably with less agricultural labor and with limited land and water resources, productivity needs to be increasing sustainably. Historically, agricultural productivity has increased strongly with the introduction of technical change and innovation resulting in the release of substantial workforce to non-agricultural sectors. Policies to increase supply include several measures, with increasing productivity and efficiency of natural resources (land and water) being perhaps the first policy priority. Addressing environmental concerns such as chemical and fertilizer use, as well as the high GHG intensity of meat and dairy production are also very important. Both objectives of achieving increased food output with environmentally friendly technologies and farm management practices are served by introducing technological innovations coupled with managerial changes through education, training, and extension mainly in areas with subsistence food production. This implies focusing research efforts not only on technical but also on organizational and socioeconomic issues (OECD, 2021).

The production challenge is to improve efficiency and productivity of food systems without putting pressure on land and water resources. This is a global concern in all countries and goes with different terms, such as “sustainable intensification” or “green growth” (see Legg, 2017; OECD, 2015). This concern currently dominates the debate on food security and sustainability. The effort should be stronger in low-income countries where food deficits are larger and population growth rates are higher. Increasing efficiency and productivity is key for this objective. The ‘more output for less input’ objective constitutes the main, albeit not the only, public policy concern for governments. Bridging the “yield gap”

mainly in food deficit countries or countries with limited import capacity is the first and most immediately available action for addressing the problem (World Bank, 2007).

Increasing yields is feasible, as the experience of Green Revolution demonstrates. Research results demonstrate that agricultural research and innovation systems have huge returns and that the battery of technological options should be as broad as possible, including technical, biological, economic, social, and behavioral strands (World Bank, 2006). Even at current levels of technology, there are large and economically exploitable yield gaps in most least developed sub-Saharan countries where, for example, cereal yields are about 1.2 tons per hectare compared to average yields of three tons per hectare in less developed countries. The reasons that yield gaps persist are many, including lack of access to information, credit, extension services, and technical skills, resulting in farming activities that use traditional, low yielding techniques, although better and more productive yield-increasing techniques are available (World Bank, 2007).

Increased food production and changing diets have, as shown previously, strong environmental impact, both direct and indirect. The world has considerable land and water reserves but the extent to which they can be used in food production is questionable. Efforts to expand agricultural land may lead to deforestation. Further, efforts to increase productivity may lead to excessive use of fertilizers and chemicals and to land degradation and water pollution, with subsequent extensive environmental damage far away from the point of application. On the other hand, livestock production has a strong impact on climate change with high GHG emission. Livestock production practices, mainly in more developed countries, need to change and this requires intensive farming systems research. Irrigated agriculture supplies most of available food, but water resources are unevenly distributed, and scarcity dominates many food-deficit, low-income countries. Nonetheless, increasing land and water efficiency is a feasible objective. On the other front, however, that of livestock systems

and GHG emissions, the problem is quite difficult and would need substantial research effort.

Technological innovations and managerial changes may be key in reducing environmental impacts and increasing food supply to feed a growing population, but their feasibility in certain cases is questioned. For example, new and emerging technologies such as biotech, Genetically Modified Organisms (GMOs), and digital technologies are at the technological forefront and could help in achieving sustainable intensification. However, the use of such technologies is opposed with contradictory arguments on both sides, stressing benefits and risks. For GMOs for example, there is an on-going scientific, political, and social debate concerning their use, benefits, risks, safety, and limitations and societies need to have substantive, scientific information, and education on the benefits and risks of such technologies. The Green Revolution paradigm, however, has shown that despite a strong critique, it was successful in uplifting billions of people from poverty and malnutrition. On a positive note, it seems that science provides society with technological solutions to achieve a sustainable food system in the near future, provided that risks are addressed.

Trade can be an excellent buffer for domestic fluctuations in food supply and trade liberalization improves food security protecting national food markets against domestic shocks by allowing food imports in times of shortage and food exports in periods of plenty. However, there are counter arguments that food commodity markets, despite the liberalization since the 1980s, remain highly distorted due to agricultural support and trade distorting policies followed mainly by more developed countries. Thus, application of WTO rules on trade-distorting policies is a strategic policy to the collective action problem witnessed during the recent food price spikes, whereby unilateral border policies, especially export controls, simply exacerbated initial price increases (Gillson & Fouad, 2015).

Research on publicly funded R&D shows extremely high rates of return implying that this might be a feasible way of sustainably feeding



global population in 2050 and eliminating hunger and malnutrition.<sup>13</sup> Public funding on agro-food system research is crucial because private funding is generally missing. Increasing investment along the agro-food supply chain, upstream and downstream of agricultural production, for increasing not only food production capacity but also efficiency of trade channels is important. Changing the farm organization, providing micro-finance, engaging women farmers, generating new techniques suitable to natural conditions, and providing extension services, involving big processing companies into marketing arrangements with primary producers, are also part of a large pool of activities to draw from.

### **Policies Addressing Socioeconomic and Governance Challenges**

The issue of food security and sustainability is not simply technical or economic. It is a complex socioeconomic problem resulting from the dynamic interactions among natural, technological, behavioral, and economic systems (OECD, 2021). There are arguments that without a strong effort in institutions and governance, life for people in the bottom billion will be getting worse (Collier, 2007). Hence, achieving food sustainability requires policies embracing all four dimensions using a governance public policy framework.

Development must rely on local, institutional, and social capacities. Improving the delivery of public goods is the responsibility of any government and local institutions and social capacities are of great help in this direction (Paalberg, 2002). Rule of law, rural infrastructure, general provision of primary education and primary healthcare, and property rights, are some of public goods that facilitate widespread development. Overseas aid may assist, but the fundamental

burden rests with the people and institutions at the local level. Strong effort is needed for improving public institutions to increase quality, accountability, effectiveness, reduce corruption, etc., characteristics that are usually absent in many least developed countries.

It is generally true that markets are imperfect and sometimes inefficient, mainly in less developed countries where market infrastructure is generally missing. Nevertheless, despite deficiencies in market development, experience has shown that market-based mechanisms are effective instruments for reaching parts of the population, which are unable to be reached with administrative policy measures. Experience has shown, also, that a broad-based approach is facilitated when market-based instruments and innovations are used for delivering public goods, for improving the efficiency of the food supply chain and using public-private partnerships in mobilizing community resources and reaching the poor (see Chapter 11 in World Bank, 2007).

One of the challenges for sustainability and resilience of the agro-food system is achieving coherent and effective national and international strategy with vision, clear development objectives, and commitment in achieving them (see for example OECD, 2020; United Nations, 2012). The vision needs to be country specific and will depend on country particular conditions and strategic choices. The issue of food sustainability is not simply a demand or supply problem. An effective food sustainability strategy establishes the direction, expectations, and values from which the government and other stakeholders operate with discretion, resulting in a more empowered society that knows where it is going and why. This leads to stronger and better-aligned behavior and motivation in achieving food sustainability objectives, a greater degree of internal and external cohesion, and greater flexibility and innovation. To achieve such a food sustainability strategy, participating public and private bodies need a clear and action-oriented plan for operating within their mandates.

Adopting a broad-based and inclusive approach facilitates general support of policy measures and the dispersion of benefits to larger

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<sup>13</sup> Public investment in agricultural R&D had historically strong positive impact on agricultural productivity (Alston et al., 2010). Despite this record, public funding for agricultural R&D has been falling in real terms over the past decades in high-income countries (Heisey & Fuglie, 2018).

segments of the population. Targeting policy measures to small-farmers, women, and landless people is sometimes more effective in achieving food security results than production or market measures. Broad-based and inclusive development efforts along the food supply chain attain sustainability of the entire food system, ensuring broad participation of stakeholders in the process and the development of local capacity to address deficiencies. Fundamental to a broad-based approach is the wide participation and involvement of individuals.

### Measurement Issues and Early Warning Systems

Aggregate food availability alone is a very poor predictor of food security and sustainability. A striking example is the increase in the world's undernourished population despite a rise in global food production per capita. Sound analysis of any public policy issue requires a clear definition and measurement capacity for the concept at hand. Food security and food sustainability are both elusive concepts; they mean different things to different people and over time. Their measurement has also been difficult and controversial. It is, therefore, necessary to include measurement in a methodological framework addressing policy questions at global, national, or even at household level. The UN strategic view identifies nine key areas of action, including “...insisting on intelligent and transparent measurement of results, because we cannot manage what we cannot measure ...” (United Nations, 2012: 3).

The most widely cited food security measurement figures are the “undernourishment” estimates generated by FAO from national-level food balance sheets and strong assumptions about the intra-national distribution of food across individuals (FAO, 2021), although there are alternative measures, that often differ radically from FAO estimates. However, all measurements have their flaws, and such measurement discrepancies indicate the difficulty of the task, making even macro-scale geographic targeting difficult for policymakers (Barret, 2010).

The Food Sustainability Index is an effort to address the measurement problem of food sustainability at the agro-food system level. The index created by the Economist Intelligence Unit and the Barilla Center for Food and Nutrition is a rather simple tool, addressed mostly to the public, designed to highlight best public policy practices relating to food, climate change, health, and responsible production and consumption (Barilla-EIU, 2018). It ranks the countries on food system sustainability based on three pillars, namely: (a) food loss and waste, (b) sustainable agriculture, and (c) nutritional challenges. It provides a thorough analysis of selected countries using 58 different indicators of the various facets of food sustainability. The Index helps building empirical evidence on the sustainability of the agro-food system enlightening the working of the system, its deficiencies and its problems, while it suggests the necessary policies in order to achieve sustainability objectives.

The Food Security Commitment and Capacity Profile (FSCCP), a comprehensive tool developed by FAO, is used to assess and track performance of national authorities in terms of their commitment and capacity to act on food insecurity and malnutrition (FAO, 2014a). Its development began in 2012 involving field-testing and extensive collaboration with national authorities. The food security profile of a country is designed as a balanced score card which provides a concise, yet comprehensive view of the country's commitments and institutional capacities in terms of four key dimensions of the enabling environment for food security and nutrition. These dimensions are: (a) Policies, programs, and legal frameworks; (b) Human and financial resources; (c) Governance, coordination mechanisms, and partnerships; and (d) Evidenced-based decision-making. The methodology has since then been adopted as an integral part of the FAO new corporate framework for monitoring results related to its Strategic Objective on the Eradication of Hunger, Food Insecurity, and Malnutrition.

A powerful tool to assess the food security situation globally and by country is the Global Information and Early Warning System (GIEWS) developed also by FAO (FAO, 2019). The tool

monitors continuously food supply and demand and other key indicators for assessing the overall food security situation in all countries of the world and analytical reports providing early warning at country and regional levels are published regularly. In addition, the tool helps countries in gathering evidence for planning decisions and strengthens national capacities in managing food security related information.

Finally, it may be noted that beyond the increased precision that more disaggregated evidence allows, individual and household-level survey-based measures permit reasonably accurate prediction of who is most likely to be affected adversely by potentially harmful shocks, such as food price increases, drought, or income shocks. Survey data-based predictions of community-level variables, such as child undernutrition, are better predictors of catastrophic situations and could be used for better-targeted measures for those in need (Barrett, 2010; van Wijk, 2014).

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## Conclusions

Population dynamics are intertwined with the food system affecting consumption patterns, production structures, employment, incomes, and poverty. At the same time, the operation of the food system puts strong pressure on critical resources and contributes to climate change undermining the world's long-term ability to produce food. Achieving sustainability and resilience of the food system, while meeting the food needs of a growing and more affluent population is a central societal goal. Global population increased from about three billion in 1960 to 7.8 billion in 2021 with more food available than ever before, but with large parts experiencing health problems either due to malnutrition or obesity. Global population will reach 9.8 billion in 2050 and we will need to feed sustainably eleven billion people at the end of the century. Population growth, despite declining growth rates, continues in sub-Saharan Africa and parts of Asia. World population as a whole is growing, but also gets older, more urbanized, and adopting consumption patterns rich in animal-based foods, thus having a strong

impact on the sustainability of the food system and on the environment.

Policy options include: (a) managing food demand and reducing food-loss and waste; (b) increasing productivity of the agro-food system in an environmentally sustainable way; (c) addressing socioeconomic and governance issues of the food system; and (d) expanding capacity for targeted policies with better measurement and early warning systems preventing food crises.

Policy options for reducing food demand include intensifying population policies, changing diets, reducing food loss and waste along the agro-food supply chain, and increasing research efforts on behavioral preferences. Among them, the most important policy lever is changing diets, in particular restraining consumption of meat and dairy products. Livestock production increases demand for feed-grains and has a strong impact on climate change through its GHG emissions. Reducing food loss and waste along the entire agro-food supply chain from post-harvest losses to food waste within the household is very important, because a third of total food production is lost or wasted along the food supply chain. Technology, infrastructure, and credit instruments can help in reducing losses along the chain, but behavioral changes are needed as well for changing diet preferences and reducing waste within the household.

Increasing food supply through increased productivity sustainably is perhaps even more important for achieving food system sustainability. With increasing urbanization and declining workforce in food production, a larger part of the global population is becoming net consumers. To meet increasing demand using fewer resources, productivity needs to be increasing faster than population growth, but in an environmentally friendly way. The Green Revolution paradigm of the past century offers an excellent example of the strong positive impact that technological innovations, managerial changes, and efficient delivery mechanisms may have on food supply and incomes, uplifting billions of people from poverty and malnutrition. Historically, agricultural productivity has increased strongly with the

introduction of technical change and innovation, releasing workforce to non-agricultural sectors, and stimulating development. However, this has not yet happened in many less developed countries where population growth is strong, and agriculture is still the main economic activity. R&D investment has extremely high rates of return implying that the target of sustainably feeding the global population in 2050 and at the same time eliminating hunger and malnutrition is feasible. Increasing investment along the agro-food supply chain, upstream and downstream of agricultural production, for increasing not only food production capacity, but also efficiency of trade channels is important. Changing the farm organization, providing micro-finance, engaging women farmers, generating new techniques suitable to particular natural conditions and providing extension services, involving big processing companies into marketing arrangements with primary producers, are also part of a large pool of policy measures to draw from.

Achieving food security and sustainability is not simply a technical or economic objective. It is a complex socioeconomic and managerial task resulting from the dynamic interactions among natural, technological, behavioral, and economic systems. Hence, without a strong effort in institutions and governance for reducing demand, increasing efficiency along food chains, and increasing food supply through higher productivity, achieving sustainability may not be feasible. It requires policies embracing all four dimensions using a governance public policy framework, a coherent and effective strategy with a broad-based, inclusive approach, with clear objectives and commitment to guide policy priorities. Adopting a broad-based and inclusive approach facilitates general support of policy measures and the dispersion of benefits to larger segments of the population. The introduction of new technology is facilitated by managerial changes through education, training, and extension, in particular for small farmers in areas with subsistence food production. Finally, research efforts should intensify not only on technical but also on organizational, managerial and governance issues for the entire food value chain.

Finally, management and early warning systems are quite critical in achieving food security and sustainability. Food security and food sustainability are both elusive concepts; they mean different things to different people and over time. Aggregate food availability alone is a very poor predictor of food security and sustainability. Proper analysis of public policy issues requires clear definition and measurement capacity. Several indicators, such as the Food Sustainability Index, the Food Security Commitment and Capacity Profile, the Global Information and Early Warning System, and household level surveys are tools that monitor food supply and demand. Although measurement is difficult and controversial, it is necessary for addressing policy questions related to food security at global, national, or even at household level for evidence-based policy. Hence, these indicators assessing food sustainability provide a good basis and guidance for public policy making.

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## References

- Albrechtsen, A. B. (2013). "Sustainable development and population dynamics – Placing people at the centre", UNFPA Deputy Executive Director Statement, 19 June 2013, available at <https://www.unfpa.org/press/sustainable-development-and-population-dynamics-placing-people-centre>. Accessed 3 Sept 2021.
- Alston, J., et al. (2010). *Persistence pays: U.S. agricultural productivity growth and the benefits from public R & D spending*. Springer.
- Barilla – Economist Intelligence Unit. (2018). *Fixing food 2018 – Best practices towards the sustainable development goals*. Barilla Center for Food and Nutrition and Economist Intelligence Unit. <https://www.barillacfn.com/en/publications/fixing-food-2018/>
- Barrett, C. B. (2010). Measuring food insecurity. *Science*, 327(5967), 825–828. <https://doi.org/10.1126/science.1182768>
- Barrett, C. B. (2012). *Food or consequences: Food security and its implications for global sociopolitical stability*. Seminar presented to the Weatherhead Center for International Affairs. Harvard University.
- Barrett, C. B. (2020). "George McGovern lecture" at the *Food and Agriculture Organization of the United Nations, April 4, 2020*. Food and Agriculture Organization.
- Batterbury, S. P. J., & Ndi, F. (2018). Land grabbing in Africa. In J. A. Binns, K. Lynch, & E. Nel (Eds.), *The Routledge handbook of African development*

- (pp. 573–582). Routledge. [https://www.researchgate.net/publication/322790095\\_Land-grabbing\\_in\\_Africa](https://www.researchgate.net/publication/322790095_Land-grabbing_in_Africa). Accessed 28 April 2020.
- Berry, E., et al. (2015). Food security and sustainability: Can one exist without the other? *Public Health Nutrition*, 18(13), 2293–2302.
- Bongaarts, J. (1994). Population policy options in the developing world. *Science*, 263(5148), 771–776.
- Capone, R., et al. (2014). Food system sustainability and food security: Connecting the dots. *Journal of Food Security*, 2(1), 13–22.
- Clapp, J. (2015). “Food security and international trade – Unpacking disputed narratives” Background paper prepared for *The State of Agricultural Commodity Markets 2015–16*, Food and Agricultural Organization.
- Clapp, J. (2017). Food self-sufficiency: Making sense of it, and when it makes sense. *Food Policy*, 66(1), 88–99.
- Collier, P. (2007). *The bottom billion: Why the poorest countries are failing and what can be done about it*. Oxford University Press.
- Ecker, O., & Breisinger, C. (2012). “The food security system: A new conceptual framework.” *IFPRI Discussion Paper 01166*. International Food Policy Research Institute.
- El Bilali, H. (2019). Research on agro-food sustainability transitions: Where are food security and nutrition? *Food Security*, 11, 559–577. <https://doi.org/10.1007/s12571-019-00922-1>
- El Bilali, H., et al. (2018). Food and nutrition security and sustainability transitions in food systems. *Food and Energy Security October 2018*, e00154. <https://doi.org/10.1002/fes3.154>
- Elzobier, A. (2014). Land Grab in Sudan. [https://www.academia.edu/8741478/Land\\_Grab\\_in\\_Sudan](https://www.academia.edu/8741478/Land_Grab_in_Sudan). Accessed 28 Nov 2021.
- FAO. (2014a). *Acting on food insecurity and malnutrition: Methodology Paper 2014*. Food and Agriculture Organization. <http://www.fao.org/3/a-i3998e.pdf>
- FAO. (2014b). *Building a common vision for sustainable food and agriculture. Principles and approaches*. Food and Agricultural Organization.
- FAO. (2015). Focusing on comparative advantage. In *Notes on the agricultural sector in Southern and Eastern Mediterranean. FAO Investment Centre, Note 3*. Food and Agricultural Organization.
- FAO. (2017). *The future of food and agriculture – Trends and challenges*. Food and Agricultural Organization.
- FAO. (2019). *Global information and early warning system (GIEWS)*. Food and Agricultural Organization. <http://www.fao.org/giews/background/en/>
- FAO. (2021). *The state of food security and nutrition in the world 2021. Transforming food systems for food security, improved nutrition and affordable healthy diets for all*. Food and Agricultural Organization with IFAD, UNICEF, WFP and WHO.
- FAO & ECA. (2018). *Africa-regional overview of food security and nutrition. Addressing the threat from climate variability and extremes for food security and nutrition*. Food and Agricultural Organization & UN Economic Commission for Africa.
- Foley, J. A., et al. (2011). Solutions for a cultivated planet. *Nature*, 478, 337–342. <https://doi.org/10.1038/nature10452>
- Fuglie, K. O. (2019). *International agricultural productivity*. U.S. Department of Agriculture, Economic Research Service.
- Garnett, T. (2008). *Cooking up a storm: Food, greenhouse gas emissions and our changing climate*. University of Surrey, The Food and Climate Research Network, Centre for Environmental Strategy.
- Garnett, T. (2013). “Food sustainability: Problems, perspectives and solutions.” Conference on “Future of food and health”, Symposium 1: “Sustainability and food security.”. *The Proceedings of the Nutrition Society*, 72(1), 29–39. <https://doi.org/10.1017/S0029665112002947>
- Gillson, I., & Fouad, A. (2015). *Trade policy and food security: Improving access to food in developing countries in the wake of high world prices*. Directions in Development-Trade. World Bank Group. <https://openknowledge.worldbank.org/handle/10986/20537>. Accessed 10 July 2020.
- Godfray, C. H. J., et al. (2010). Food security: The challenge of feeding 9 billion people. *Science*, 327(5967), 812–818.
- Haniotis, T. (2017). The food security debate in a shifting market environment. In G. Mergos & M. Papanastassiou (Eds.), *Food security and sustainability – Investment and financing along agro-food supply chains* (pp. 35–54). Palgrave Macmillan.
- Heisey, P., & Fuglie, K. (2018). “Agricultural research investment and policy reform in high-income countries.” *Economic Research Report 249*. U.S. Department of Agriculture. <http://www.ers.usda.gov>
- HLPE. (2014). *Food losses and waste in the context of sustainable food systems. A report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. Food and Agricultural Organization.
- HLPE. (2017). *Nutrition and food systems. A report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. Food and Agricultural Organization.
- HLPE. (2020). *Food security and nutrition: Building a global narrative towards 2030. A report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. Food and Agricultural Organization.
- IFPRI. (2021). *2021 Global Food Policy Report – Transforming food systems after COVID-19*. International Food Policy Research Institute.
- IPCC. (2019). *Special report on climate change and land, summary for policymakers*. Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/srcccl/chapter/summary-for-policymakers/>

- Konandreas, P., Huddleston, B., & Ramagkura, V. (1978). *Food security: An insurance approach. Research Report 4*. International Food Policy Research Institute.
- Lang, T., & Barling, D. (2012). Food security or food sustainability? The return and reformulation of an old debate. *The Geographic Journal*, 178(4), 313–326.
- Legg, W. (2017). Green growth strategies in agriculture in OECD countries. In G. Mergos & M. Papanastassiou (Eds.), *Food security and sustainability – Investment and financing along agro-food supply chains* (pp. 55–70). Palgrave Macmillan.
- Liversage, H. (2010). *Responding to ‘land grabbing’ and promoting responsible investment in agriculture. IFAD Occasional Paper 2*. International Fund for Agricultural Development.
- Maxwell, S., & Frankenberger, T. (1992). *Household food security: Concepts, indicators and measurement – A technical review*. UNICEF & International Fund for Agricultural Development (IFAD).
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- McCullough, E. B., Pingali, P. L., & Stamoulis, K. (Eds.). (2008). *The transformation of agri-food systems: Globalization, supply chains and smallholder farmers*. Earthscan with Food and Agricultural Organization.
- Mellor, J. W. (1986). *The new global context of agricultural research: Implications for policy. Address at the International Centers’ Week, reprinted in the 1986 Report of the IFPRI*. International Food Policy Research Institute.
- Mergos, G. (1989). Feed use of grain: On trends and determinants. *European Review of Agricultural Economics*, 16(1), 1–17.
- Mergos, G. (1992). The economic contribution of children in peasant agriculture and the effect of education: Evidence from the Philippines. *The Pakistan Development Review*, 31(2), 189–201.
- Mergos, G., & Papanastassiou, M. (Eds.). (2017). *Food security and sustainability – Investment and financing along agro-food supply chains*. Palgrave Macmillan.
- Mergos, G., & Yotopoulos, P. A. (1988). Demand for feed inputs in the Greek livestock sector. *European Review of Agricultural Economics*, 15, 1–17.
- Millennium Ecosystem Assessment. (2005). *Global assessment reports*. Island Press. <https://www.millenniumassessment.org/en/Global.html>
- Morawicki, R. O., & Diaz González, D. J. (2018). Food sustainability in the context of human behavior. *The Yale Journal of Biology and Medicine*, 91(2), 191–196.
- Nelson, G., et al. (2010). *Food security, farming and climate change to 2050: Scenarios, results, policy options*. International Food Policy Research Institute.
- OECD. (2013). *Policy instruments to support green growth in agriculture. OECD green growth studies*. Organisation for Economic Co-operation and Development.
- OECD. (2015). *Fostering green growth in agriculture: The role of training, advisory services and extension initiatives, OECD green growth studies*. Organisation for Economic Co-operation and Development.
- OECD. (2020). “Food systems and the challenges of coherent policies.” Chapter 1: “The performance of the global food systems.”. Organisation for Economic Co-operation and Development.
- OECD. (2021). *Making better policies for food systems*. Organisation for Economic Co-operation and Development.
- OECD-FAO. (2013). *OECD-FAO agricultural Outlook 2013*. Chapter 2 “Feeding China: Prospects and challenges in the next decade.” Organisation for Economic Co-operation and Development.
- Paarlberg, R. L. (2002). *Governance and food security in an age of globalization*. International Food Policy Research Institute.
- Papanastassiou, M., & Mergos, G. (2017). Global value chains, multinational corporations and food security: Essential theoretical and methodological challenges for a sustainable development agenda. In G. Mergos & M. Papanastassiou (Eds.), *Food security and sustainability – Investment and financing along agro-food supply chains* (pp. 89–100). Palgrave Macmillan.
- Pinstrop-Andersen, P. (2009). Food security: Definition and measurement. *Food Security*, 1, 5–7.
- Reutlinger, S. (1978). Food insecurity: Magnitude and remedies. *World Development*, 6(6), 797–811.
- Reutlinger, S. (1985). “Policy options for food security.” *Agricultural research unit discussion paper, ARU 44*. World Bank Group.
- Sarris, A., & Morisson, J. (Eds.). (2010). *Food security in Africa: Market and trade policy for staple foods in Eastern and Southern Africa*. Edward Elgar Publishing Limited.
- Sarris, A., & Taylor, L. (1976). Cereal stocks, food aid and food security for the poor. *World Development*, 4(12), 967–976.
- Sen, A. (1981). *Poverty and famine: An essay on entitlement and deprivation*. Clarendon Press.
- Shaw, D. J. (2007). *World food security: A history since 1945*. Palgrave Macmillan.
- Smith, P., & Gregory, P. J. (2013). Climate change and sustainable food production. *The Proceedings of the Nutrition Society*, 72(1), 21–28. <https://doi.org/10.1017/S0029665112002832>
- Stern, N. (2006). *The economics of climate change – The Stern review*. Cambridge University Press.
- U.S. Department of Agriculture. (2018). *Grain: World markets and trade*. USDA, Foreign Agricultural Service.
- UNEP. (2019). *Collaborative framework for food systems transformation: A multi-stakeholder pathway for sustainable food systems*. United Nations Environment Programme, see. <https://www.oneplanetnetwork.org/resource/collaborative-framework-food-systems-transformation-multi-stakeholder-pathway-sustainable>
- United Nations. (2012). Food and agriculture – The future of sustainability. In *Sustainable development in the*

- 21st century (SD21). United Nations, Department of Economic and Social Affairs. [https://www.un.org/esa/dsd/dsd\\_sd21st/21\\_pdf/agriculture%20and%20food%20report.pdf](https://www.un.org/esa/dsd/dsd_sd21st/21_pdf/agriculture%20and%20food%20report.pdf)
- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. United Nations, Department of Economic and Social Affairs. <https://sustainabledevelopment.un.org/post2015/transformingourworld>
- United Nations (Ed.). (2019a). *Report of the secretary general: Progress towards the sustainable development goals. Special edit.* United Nations, Economic and Social Council.
- United Nations. (2019b). *World population prospects 2019: Highlights*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2021). *Food systems summit 2021*. United Nations. <https://www.un.org/en/food-systems-summit/about>
- Valdes, A. (1981). *Food security for developing countries*. Westview Press.
- van Wijk, M. T. (2014). From global economic modelling to household level analyses of food security and sustainability: How big is the gap and can we bridge it? *Food Policy*, 49(2), 378–388.
- von Brown, J. (2014). “Food and Nutrition Security: The Concept and its Realization.” Bread and Brain, Education and Poverty. Vatican City State (Holy See), VA: Pontifical Academy of Sciences, Scripta Varia 125.
- World Bank. (1986). *Poverty and hunger: Issues and options for food security in developing countries*. A World Bank Policy Study. World Bank Group.
- World Bank. (2006). *Enhancing agricultural innovation: How to go beyond the strengthening of research system*. World Bank Group, Agriculture and Rural Development Department.
- World Bank. (2007). *World development report 2008: Agriculture for development*. World Bank Group.
- World Resources Institute. (2019). *World Resources Report - Creating a Sustainable Food Future – A Menu of Solutions to Feed Nearly 10 billion People by 2050*. Final Report, July 2019. World Resources Institute. [https://research.wri.org/sites/default/files/2019-07/WRR\\_Food\\_Full\\_Report\\_0.pdf](https://research.wri.org/sites/default/files/2019-07/WRR_Food_Full_Report_0.pdf)
- Yotopoulos, P. A. (1983). A micro economic-demographic model of the agricultural household in the Philippines. *Food Research Institute Studies*, 19(1), 1–24.
- Yotopoulos, P. A., & Mergos, G. (1986). Family labor allocation in the agricultural household. *Food Research Institute Studies*, 20(1), 87–104.
- Yu, W., & Cao, L. (2015). China’s meat and grain imports during 2000–2012 and beyond: A comparative perspective. *Journal of Integrative Agriculture*, 14(6), 1101–1114.
- Yuan, X., et al. (2020). Modeling co-movement among different agricultural commodity markets: A copula-GARCH approach. *Sustainability*, 12(1), 393. <https://doi.org/10.3390/su12010393>
- Yuanyuan, C., & Changhe, L. (2019). Future grain consumption trends and implications on grain security in China. *Sustainability*, 11(9), 5165. <https://doi.org/10.3390/su11195165>

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## Part II

# Empirical Evidence





# Sub-Saharan Africa: Slow Fertility Transitions Despite Policy Efforts

# 8

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## Introduction

Fertility began to decline in most countries in sub-Saharan Africa (SSA) in the early 1980s. This decline was partly the result of the implementation of population policies, international and regional initiatives, and the work of NGOs in promoting family planning as well as Sexual and Reproductive Health and Rights (SRHR).

However, the fertility decline has been slow and very different among countries. The lack of political will and commitment to family planning has been identified as one of the main factors behind the poor performance of some countries in addressing the “sensitive” issue of fertility control. This situation is changing, however, as some African governments are now viewing family planning and reproductive health as an essential tool for improving child and maternal health, slowing population growth, achieving environmental sustainability, and strengthening their

efforts to reduce poverty and accelerate income growth.

The management of population growth and size have traditionally been sensitive and controversial issues among African leaders. During the 1970s and 1980s, family planning programs, introduced and funded by Western countries, were seen as an attempt to limit the number of Africans in the world’s population. At the 1974 Bucharest Population Conference, most African representatives joined delegates from other developing countries to reject calls to promote family planning to slow population growth.

At the Cairo 1994 International Conference on Population and Development (ICPD), most African countries recognized that rapid population growth was detrimental to their development efforts. However, the conference marked a major ideological shift from a focus on reducing population growth and achieving population targets to a new paradigm aimed at meeting the reproductive health and socioeconomic needs of women and men. The new approach highlighted the need to empower women and improve their opportunities and choices by expanding their access to education and health services and promoting their skills development as well as access to decent jobs. Although the priority given to reproductive health and rights has been a positive step forward, an unintended negative consequence of the ICPD has been the diminished emphasis on family planning and population growth management in high fertility countries.

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In 2005, the United Nations added to the Millennium Development Goals (MDGs) adopted in 2000 a target on universal access to sexual and reproductive health (SRH), thus recognizing that reproductive health was essential to achieving the MDGs, especially those related to child health (MDG 4) and maternal health (MDG 5). The decision to include universal sexual and reproductive health within the MDG framework strengthened efforts to achieve the 1994 ICPD Programme of Action (PoA). Indeed, the cornerstone of the ICPD PoA was the resolution that women and their partners should have universal access to the information and services they need to make informed and voluntary decisions about their reproduction and to plan the number and timing of their pregnancies accordingly.

The Sustainable Development Goals (SDGs) adopted by the United Nations General Assembly in 2015 have taken the same approach, especially in SDG 3, which aims to “Ensure healthy lives and promote well-being for all at all ages”. One target of SDG 3 is to ensure by 2030 universal access to sexual and reproductive health-care services, including for family planning, information, and education, and the integration of reproductive health into national strategies and programs. The objective of SDG 5 is to “Achieve gender equality and empower all women and girls”.

This chapter reviews the different views on family planning/population growth management expressed in sub-Saharan Africa since the 1950s and considers three periods, as follows:

1950–1980: The Difficult Acceptance of Family Planning and Population Policies;

1980–2000: Toward a Consensus on the Benefits of Family Planning despite the HIV/AIDS Epidemic; and

2000–2020: The Capturing of a Demographic Dividend through an Integrated Policy Approach to Population Issues.

Next, the chapter presents the quite different experiences of dealing with population-related issues in six countries, namely Kenya, Ghana, Ethiopia, Rwanda, Burkina Faso, and Niger.

Then, the chapter concludes with some policy recommendations.

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## **1950–1980: The Difficult Acceptance of Family Planning and Population Policies**

### **Concerns About Population Growth**

The period from the 1940s to the 1960s was marked by strong population growth, particularly in Asian and Latin American countries. Fears of a population “explosion” emerged, and international leaders began to call for action to slow population growth. This period was also marked by the “Population Movement” in the United States, which grew primarily around researchers and representatives of major foundations and NGOs and had international resonance around the question of how much the world’s population would grow in the coming years. These facts and writings raised public awareness of population issues and motivated the development and dissemination of family planning programs to mitigate rapid population growth.

### **Governments’ Refusal to Adopt Family Planning Programs**

From the 1950s to the 1970s, three World Population Conferences were held in Rome (1954), Belgrade (1965), and Bucharest (1974) (see Chap. 15: *Population Institutions and International Population Conferences* of this *Handbook* [Bernstein et al., [this volume](#)]). The first two conferences, organized by the United Nations Population Commission, mainly gathered experts and did not involve governments; they were more technical than political. In Rome, the collection of better demographic data and the place of demography as an autonomous discipline were debated. In Belgrade, the relationship between population variables and socioeconomic development was studied and family planning was discussed (May, 2013). The World Population Conference,

organized by the United Nations in Bucharest in 1974, was held to examine basic demographic problems and their relationships with economic and social development and the population policies and programs of action needed to promote human welfare and progress. The purpose of the Bucharest Conference was to prepare a World Population Plan of Action. This document, the first international declaration on population, was finally adopted despite the contradictory positions that emerged during the debates. The Plan of Action covered the relationship between population, development, and the international economy. It affirmed the right of couples to choose the size of their families, and the responsibility of governments to provide the means for couples to exercise this right. It also stressed the need to accelerate economic and social development and to establish a new international economic order.

Prior to the 1974 Bucharest Conference, population programs in SSA suffered from weak government support and virtually no resources for implementation. In addition, many SSA states were reluctant to adopt family planning as a strategy for socioeconomic development. African culture and social structures have traditionally favored large families. In Bucharest in 1974, most African governments' representatives resisted the neo-Malthusian ideas promoted by the more developed countries, namely the adoption of family planning programs to reduce population growth. African countries were not yet ready to adopt the population approach that neo-Malthusians were promoting. The African pronatalist cultural preference had a basis in their mainly agrarian and craft societies. In this context, having many children was a benefit, both in terms of forms of kinship organization, which perpetuated family claims to land and political office, and as a source of labor (Caldwell et al., 1992). These countries (many of which were newly independent) were developing their own identity with interests distinct from those of the capitalist and/or socialist more developed countries (Chimwete et al., 2005).

The position of most less developed countries against fertility control was clear. These countries considered that there was no population problem

and that there was no need to slow population growth. They shared a position referred to by Karan Singh in the statement "*Development is the best contraceptive*" that he made at the World Population Conference in Bucharest in 1974. Singh spoke of the need for a more balanced approach to population growth mitigation. At that time, social development was viewed to play a major role in reducing the fertility rate by creating a more favorable environment for smaller families. The view presented in Bucharest was that, in the long run, economic development would itself contribute to lower fertility levels. Africa emerged from this Conference with the maintenance of a pronatalist position supported by cultural and religious beliefs which defended and legitimized large families. Later in 1976, the results of the United Nations Survey of Governments' Perceptions of Population Growth, Fertility Levels, and Support for Family Planning Programs<sup>1</sup> confirmed the pronatalist stance of political leaders in most SSA countries. Indeed, by 1976 (2 years after the Bucharest Conference), most countries (except Ghana, Kenya, Liberia, Madagascar, Botswana, and the Comoros) considered their fertility levels to be satisfactory, and that no interventions to control the rate of their population growth were necessary. Moreover, countries such as Cameroon, Central African Republic, Côte d'Ivoire, Equatorial Guinea, Gabon, and Mozambique even considered their population growth to be low.

However, thanks to the improvement in data collection, which has led to a better understanding of the relationship between population and development, on the one hand, and the economic crisis and the consequences of structural adjustment programs in the early 1980s, on the other, there has been a gradual awareness among African policymakers about the importance of population issues. This led in the following decades to the

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<sup>1</sup> As a reminder, since 1963, the United Nations has been collecting every 5 years the perceptions of states about the characteristics of their population and their policies. The information collected includes population size and growth, the level of population growth, mortality, fertility levels, migration as well as the measures and policies implemented (May, 2013).

establishment of population and family planning policies. Only Kenya, Ghana, and Mauritius had a population policy before the Bucharest conference. Kenya adopted a policy in 1967, and it was one of the first SSA countries to do so. For Ghana and Kenya, the elaboration of their first national population policy was initiated thanks to the political will of some leaders, but these countries were also influenced by international NGOs. Indeed, the International Planned Parenthood Federation (IPPF) influenced the implementation of the national population policy in Ghana in 1969, while the Population Council in 1967 influenced Kenya's population policy (Robinson, 2015). Despite Kenya's and Ghana's adoption of population policies, these were not implemented actively. Therefore, these early population policies were not successful. Indeed, fertility indicators in Kenya and Ghana did not decline as much as desired and, in some cases, fertility even increased.

### **Data Collection for a Better Understanding of Population Dynamics**

The first two World Population Conferences (1954 and 1965) had shown the need to produce more complete information on the demographic situation in the less developed countries, as well as the need to promote the creation of regional training centers, which would train specialists in demographic analysis and population studies and help to address population problems. The United Nations Population Fund (UNFPA) was thus established in 1969 with one of its missions being to develop the knowledge and capacities needed to meet population and family planning needs. At the same time, several training centers for population specialists were established by the UN in several African countries to promote and strengthen training and research in demography and related fields in African countries, namely the Cairo Demographic Center (CDC) in Egypt (1963), the Institute for Demographic Training and Research (IFORD) in Yaoundé, Cameroon (1971), and the Regional Institute for Population Studies (RIPS) in Accra, Ghana (1973).

Similarly, the World Fertility Survey program began in 1972 and carried out fertility surveys in 42 developing countries, including ten countries in sub-Saharan Africa. The results of these surveys and of the population censuses conducted in the countries provided a better understanding of demographic phenomena and more particularly of the levels and determinants of fertility. The results have undoubtedly helped to qualify the position of national governments on family planning programs and high fertility mitigation.

Thanks to the World Fertility Survey (WFS), conducted from the late 1970s to the early 1980s, several African countries had – for the first time – reliable data to make their assessments, prepare their demographic profiles, and take major population decisions. Following the WFS, the demographic and health surveys (DHS) showed how women's health status could be improved through family planning. This information helped convince many African countries to adopt a more favorable attitude toward family planning (African Development Bank, 2000). In addition, during the 1970s, the first modern population censuses were conducted in several SSA countries, providing more reliable information on fertility levels. Burkina Faso (1975), Senegal (1976), Mali (1976), Cameroon (1976), Côte d'Ivoire (1975), and Niger (1977) conducted their first modern population censuses in the mid-1970s, while Kenya (1948), Ghana (1960), and Togo (1960) conducted theirs earlier. The results of these first censuses were a revealing turning point in some SSA countries and certainly shed light on the position of governments on the social and development policies to be implemented to foster economic development. The results have revealed two major points for governments: firstly, there was indeed a population problem in terms of distribution and land-use planning; secondly, the issue posed by the gap between high population growth and the economic growth needed to raise standards of living had to be addressed.

The increasing availability of data coupled with research findings documenting high rates of fertility (including the conclusions of the first African population conference held in Accra in

1971) and the pressure of international institutions (World Bank, International Monetary Fund) heightened the awareness of governments in SSA countries about the developmental challenges posed by sustained rapid rates of population growth.

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## **1980–2000: Toward a Consensus on the Benefits of Family Planning Despite the HIV/AIDS Epidemic**

### **Acceptance and Development of National Population Policies**

The period 1980–2000 was an important turning point in the acceptance of family planning, reproductive health, and reproductive rights programs in SSA. Following the International Population Conference held in Mexico City in 1984, the position of African governments began to shift from a reluctance to accept family planning (FP) programs to their gradual acceptance. There was now a general agreement that the “population problem” required both containing fertility and increasing investments in development (Nowrojee et al., 2020). At the African regional level, the Arusha Conference in 1984 led to the preparation of the Mexico Conference, which resulted in the Kilimanjaro Program. This was a step forward in the consideration of FP and population policy programs at the African level. In Arusha, government representatives made suggestions and recommendations for the implementation of the World Population Plan of Action adopted in Bucharest in 1974. The Kilimanjaro Programme of Action encouraged the development and implementation of integrated population policies that attempted to provide sustainable solutions to the major problems of high mortality and fertility, unequal population distribution, rising unemployment, stagnant living standards, and income distribution. Following the recommendations of the Kilimanjaro Programme of Action, several African countries developed national population policies. At the time of the 1974 Bucharest World Population Conference, only three SSA countries, namely

Ghana, Kenya, and Mauritius, had developed their first national population policy with the goal of reducing the rate of growth of their population.

After the Dakar/Ngor conferences in 1992, the Kilimanjaro Programme of Action (1984), and the Mexico City conference (1984), more than two-thirds of sub-Saharan African countries adopted national population policies to reduce population growth (Robinson, 2016). Most of these national population policies were revised after the International Conference on Population and Development (ICPD) held in Cairo, Egypt, in 1994, in order to incorporate reproductive health.

Unfortunately, the slow decline in fertility levels across SSA countries showed that population policies have had little impact on many people’s reproductive lives, which raised the problem of their implementation and the political commitment to support these population policies. Also, as Renne (2016) showed in the case of Nigeria, the disconnect between the government population policy and people’s concerns about their health and well-being have contributed to continuing high levels of fertility despite the implementation of the policy.

A number of authors, including Robinson (2015) and Eager (2004), have shown the strong influence at the country level of international organizations such as the World Bank and United Nations agencies in the development of national population policies. Therefore, political leaders have occasionally adopted population policies mainly as a means to meet international requirements and obtain resources from donors. This partly explains the limited results of these population policies on fertility change.

### **Family Planning and the HIV/AIDS Epidemic in 1980s and 1990s**

The need for developing family planning and population programs in the 1980s and 1990s was confronted with the need to prioritize public policies in order to address other pressing issues. Indeed, HIV/AIDS, poverty, environmental degradation, and security concerns competed for the

resources and priorities of governments and leaders, making it even more difficult for them to address family planning issues (U.S. National Academies of Sciences, 2016). Southern African countries experienced a particularly high burden of the HIV/AIDS pandemic, which has had a significant effect on the age structure of their population, and was associated with a lowering effect on fertility.

In most countries of West Africa, the desire to curb population growth has not led to significant results in fertility reduction, despite the development of national population policies. Niger had more than seven children per woman in 2012 although it had adopted national population policies in 1992. The reasons for the low impact of family planning programs during the 1980s and 1990s are multiple. The main ones commonly documented in the literature are socio-cultural factors and the problem of access to services and of their quality. According to Seltzer (2002), in the early days of family planning in the less developed countries, the supply of contraceptive services was the major concern, so family planning programs were more oriented toward improving the supply of services than promoting contraceptive use. Moreover, during several decades of family planning program implementation, it was found that in the high fertility countries of the continent, particularly those in West Africa, modern contraceptive prevalence rates in 2020 were still below 40%, and contraception was mainly used for birth spacing to reach the still high desired numbers of children under better health conditions (Guengant, 2017).

### **1994 ICPD and More Attention to Reproductive Health**

The late 1990s and 2000s were marked by the implementation of the recommendations of the 1994 ICPD. At this Conference, delegates from various governments, including SSA countries, UN agencies, NGOs, and the media met to discuss various population issues, including immigration, infant mortality, family planning, women's education, and the protection of women. The Conference shifted the narrative

from demographic targets to reproductive health and rights, defining reproductive health (for the first time in an international policy document) as “*a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system*”. A key recommendation was to provide: comprehensive reproductive health care, including family planning; safe pregnancy and delivery services; abortion services where legal; prevention and treatment of sexually transmitted infections (including HIV/AIDS); information and counseling on sexuality; and elimination of harmful practices against women (such as genital cutting and forced marriage) (United Nations, 1995). Several topics, including freedom of access to abortion and to contraception for adolescents, polarized the participants of the Cairo conference. The 1994 ICPD was the last major world population conference. In many sub-Saharan African countries, the ICPD Programme of Action (PoA) had inspired reproductive health policies and programs, highlighting the important role it plays in reducing maternal, newborn, and child mortality. In many of these countries, policies and programs to reduce maternal and child mortality have been formulated and implemented to improve the health of vulnerable groups. As a result, several SSA countries have revised their national population policies to reflect the recommendations of the ICPD PoA. Thus, importance has been given to several topics such as women's empowerment and the need to address women's educational and health needs, especially reproductive health. This shift in focus put an end to top-down population interventions, which were perceived as focusing exclusively on family planning and fertility control, and which often violated individual rights and gender equality (May, 2019).

While the 1994 ICPD Programme of Action laid the foundation for people-centered development policies, recognizing that population, economic growth, and sustainable development are interdependent and closely linked to human rights, it should be noted that in several SSA countries the reduction of fertility remained too slow to significantly accelerate the demographic transition, although fertility had begun to decline.

## **2000–2020: The Capturing of a Demographic Dividend Through an Integrated Policy Approach to Population Issues**

### **Stronger Commitment to Reducing Maternal and Child Mortality and Promoting Fertility Reduction**

During the 2000s and 2010s, the international community and SSA countries more actively implemented the comprehensive 1994 ICPD PoA. Attention was given to maternal and child health, with a focus on women's rights and health. This attention was reaffirmed in the Millennium Development Goals (MDGs) adopted in September 2000 by heads of State and Government at the UN Millennium Summit, and especially in MDG 5 (Improve maternal health). The MDGs aimed overall to reduce poverty and achieve human development worldwide. The Sustainable Development Goals (SDGs) adopted by United Nations General Assembly in 2015 reiterated this focus under SDG 3 "Ensure healthy lives and promote well-being for all at all ages", which stipulates the target of ensuring universal access to sexual and reproductive health-care services by 2030, including for family planning, information, and education, as well as the integration of reproductive health into national strategies and programs (World Health Organization, 2017).

However, in SSA countries, policies and interventions to achieve the MDGs and SDGs for the reduction of maternal and child mortality and improvement of health more generally have been given priority over interventions to increase contraceptive prevalence. The French-speaking countries of West Africa, in particular, have adopted or updated their laws on reproductive health (Population Reference Bureau, 2008). In addition, several SSA countries have introduced maternal health care fee exemptions as a quick win approach to reach MDG 5 universal health coverage (UHC) (Richard et al., 2013). Countries have also made considerable progress towards the desired outcomes in several social areas, including HIV/AIDS treatment, primary school enrollment, access to safe drinking water, and

considerable progress in malaria control, bringing many countries much closer to achieving the MDG targets.

Overall, there have been strong regional and national political commitments to reach the MDGs and to improve the health of the population in general. In April 2001, Heads of State and Government of SSA countries met in Abuja, Nigeria, where they made a financial commitment to achieve the Millennium Development Goals (MDGs) by announcing plans to allocate at least 15% of their national budgets to the health sector. This commitment was reaffirmed at a special summit on HIV/AIDS, tuberculosis, and malaria held in Abuja in 2006 and at the 15th Ordinary Session of the African Union Conference in 2010 in Kampala. As part of the parallel activities to the African Union Summit in 2010, African Ministers of Health and Ministers of Finance were particularly keen to follow up on these commitments by reflecting on ways to find solutions to health financing challenges, as reflected in the dialogue held in July 2010 in Kampala. Unfortunately, very few African countries have honored the commitment made in Abuja in 2001 to allocate 15% of their national budgets to health.

Despite this shortcoming, the various interventions in the SSA countries significantly reduced child mortality and, to a lesser extent, maternal mortality over the past 20–30 years. But for both indicators, mortality levels remained high in most countries compared to those observed in other developing countries and additional efforts are still needed. It should be noted that the still high mortality levels are largely the result of persisting high fertility associated with numerous at-risk pregnancies (i.e., too early, too close, too late, and too numerous). In fact, the number of children per woman is still declining too slowly to significantly accelerate the demographic transition and enable the capturing of a first demographic dividend.

To be complete, we must mention additional conferences and initiatives related to Sexual and Reproductive Health and Rights (SRHR). This includes the Maputo Plan of Action in 2006, the Ouagadougou Partnership in 2011, African Union summits, and other initiatives at national,

sub-regional, and regional levels in Africa, which all have had an impact on changing official positions in mitigating population growth. These conferences and initiatives have promoted and consolidated new understandings of population issues with either a convergence or a divergence of ideas on sensitive issues, such as abortion in the Maputo Protocol. In addition, the formation of interest groups, such as the Council of African Parliamentarians on Population and Development established in 1986, the First Ladies' High-Level Meetings on Family Planning and Reproductive Health, and the work of FP Champions have accelerated changes in the perceptions of authorities and populations at large regarding population issues.

## In Search of a Demographic Dividend

The current debates on population in SSA are dominated by the issue of the demographic dividend (see Chap. 19: *Policies Needed to Capture Demographic Dividends* of this *Handbook* [Turbat, [this volume](#)]). Both African policymakers and researchers are interested in the demographic dividend and the pressing question is how to capture such a demographic dividend. This interest in the demographic dividend is one factor that explains the new wave of optimism for fertility decline in Africa. Voluntary fertility decline is a critical factor in creating a demographic dividend. The African Union had devoted the year 2017 to the theme “Harnessing the demographic dividend through investments in youth”, with the aim of accelerating the implementation of a continental initiative on the demographic dividend with a well-defined roadmap.<sup>2</sup> Several countries across Africa have put in place programs and policies that would help create an enabling environment and position them towards capturing a first

demographic dividend. At the regional level, a continent-wide demographic dividend initiative has been in place since 2013, and the African Union endorsed the demographic dividend as a key framework for achieving the continent's *Agenda 2063* as well as national development aspirations. Most African countries have signed various protocols that culminated in the development of the *Agenda 2063* and the Common African Position on the Post-2015 Development Agenda (Mueni, 2017).

To obtain a demographic dividend, transformations in the age structures of populations are necessary at the country level, and this requires the completion of the fertility transition. While the fertility transition is complete or nearly complete in the more developed countries and most non-African developing countries, it is very slow in most SSA countries where mortality remains relatively high and where the fertility transition might not be completed before 2100 in several countries (Guengant, 2019). To accelerate the fertility transition, there is renewed interest in family planning programs and donor support. In this context, the London Family Planning Summit (2012) brought together several Heads of government and civil society organizations from around the world, with support from the UN and the Bill & Melinda Gates Foundation. The Summit led to the birth of the global FP2020 program, which promotes the right of women and girls to decide freely whether, when, and how many children they want to have. FP2020 brings together more than 90 civil society organizations (CSOs), technical and financial partners, governments, private enterprises, and members of the scientific community from 69 developing countries, of which 38 are in SSA, around a common goal, namely to increase the demand and supply of FP to reach 120 million new users of modern contraception in these priority countries by 2020. At this Summit, the governments of the countries made a commitment to increase the demand for, and use of, contraception by 2020. FP2020 has developed a “Performance Monitoring for Action (PMA2020)” data collection platform in eight SSA countries (Burkina Faso, Côte d'Ivoire, the

<sup>2</sup> African Union General Assembly: AU Roadmap on Fully Benefiting from the Demographic Dividend by Investing in Youth; February 2017; see <https://wcaro.unfpa.org/fr/publications/feuille-de-route-de-lua-sur-tirer-pleinement-profit-du-dividende-d%C3%A9mographique-en>, accessed on August 3, 2020.



Democratic Republic of the Congo, Ethiopia, Kenya, Niger, Nigeria, and Uganda), enabling stakeholders to monitor country progress against the commitments made. However, scientific evidence shows that the capturing of a demographic dividend will take place at different times depending on the countries, according to the rhythm of decline in the number of children per woman and at a given level of dependency ratio: the demographic window of opportunity might open around 2025 for Ethiopia, while for Burkina Faso, it may be necessary to wait until 2045 (Guengant, 2019).

Leaders' views on managing the size of the population and its growth have changed significantly since the 1960s. At first considered underpopulated, the need to manage Africa's population size has become apparent. In 1971, Samir Amin (1971) wrote that "*Africa is underpopulated*" and, as said before, the results of the 1976 UN surveys of governments' perceptions of their population growth showed that most countries considered their fertility levels to be satisfactory and that no interventions to control their rate of population growth were deemed necessary. Indeed, very few countries in SSA had a population policy and many viewed the idea of population control being imposed on them from outside. According to Ngondo a Pitshandenge (1994: 105), population policies and programmes are often imposed from the top, "*then pass as unacknowledged neo-imperialist and neo-colonialist initiatives and are reluctantly received by the masses*".

However, even if there is still some reluctance to manage the size of the population, as in the case of the President of Tanzania, the opinions of leaders have much evolved. In 2018, President John Magufuli had urged Tanzanian women to "*free their ovaries*"<sup>3</sup> and have more children in order to stimulate the economy and make the country a regional power. To be sure, he recognised that "*high population growth in Tanzania means increased levels of poverty and*

*income inequality*".<sup>4</sup> But surprisingly, he added that "*when you have a large population, you build the economy. That's why China's economy is so huge*", citing India and Nigeria as other examples of countries that have benefited from a demographic dividend, which is definitely not correct for Nigeria. In contrast, Ugandan President Yoweri Museveni told Uganda's first National Family Planning Conference on July 28, 2014 that "*family Planning is good for the health of the mother, good for the health of children, and for the welfare of the family!*"<sup>5</sup>

In West Africa, the management of population growth has become an important issue that is high on the political agenda and is deemed a necessary condition for the achievement of the demographic dividend and economic emergence of the countries. At a sub-regional meeting on demography in Ouagadougou in July 2017 (with the participation of Mauritania and Chad), parliamentarians affirmed their desire to limit the number of children per woman to three. As suggested by Mr. Salif Diallo, the President of the National Assembly of Burkina Faso, "*ECOWAS parliamentarians agreed that by 2030, parliaments should encourage governments to put in place policies to ensure that every woman (...) has no more than three children to control the demographic boom*".<sup>6</sup> Mr. Diallo added: "*we believe that when we have economic growth rates of countries that are around 5 to 6 percent with a fertility rate of 6 or 7 children we are in a situation of uncontrolled demography and we cannot hope for development with such a situation*."

<sup>3</sup> See <https://edition.cnn.com/2018/09/11/africa/tanzania-birth-control-magufuli-intl/index.html>, accessed on August 3, 2020.

<sup>4</sup> See <https://www.abc.net.au/news/2019-07-11/tanzanian-president-tells-women-to-set-ovaries-free/11298118>, accessed on August 3, 2020.

<sup>5</sup> See <https://www.unfpa.org/news/ugandan-youth-push-increased-access-reproductive-health-services?page=327>, accessed on August 3, 2020.

<sup>6</sup> See <https://www.niameyetles2jours.com/la-gestion-publique/gouvernance-economique/2507-1117-la-cedeao-compte-limiter-a-trois-le-nombre-de-naissances-par-femme>, accessed on August 3, 2020.

## Cases Studies

Within this international and regional context, SSA countries have had different experiences in dealing with population-related problems. The few countries which adopted population policies as early as the 1960s can be considered as forerunners. Some countries embarked more recently in ambitious sexual and reproductive health and family planning programs with some success and can be called the newcomers. Last, many countries still have high fertility levels and population growth, despite the stated will to decrease them along with some efforts to curb population growth.

To reflect this diversity, we have selected six countries to examine in more details their experiences based on their official documents, the literature, and the most recent data available. These countries are: Kenya and Ghana as forerunners countries; Rwanda and Ethiopia as newcomers; and Burkina Faso and Niger as examples of countries with still high fertility and population growth.

### Kenya

Kenya was among the first three countries in SSA to adopt a population policy before the 1974 Bucharest World Population Conference, at a time when the debate on fertility control was encountering strong opposition in most SSA countries. Indeed, Kenya launched a national family planning program in 1967 based on quantified objectives for reducing population growth. After the second Census of 1969, in which the level of fertility was considered very high, the government of Kenya decided to launch a family planning program of 5 years (1975–1979). The specific objectives of this program were to reduce the annual growth rate of the population, from 3.3% in 1975 to 3.0% in 1979, and to improve maternal and child health (Kobiané & Bougma, 2017). Since then, the concern about rapid population growth has been articulated in several policy documents. The implementation of this first national population

policy was carried out with the support of the Population Council (Robinson, 2016) and benefited from political commitment at the top of the state. In the early 1960s, Kenya's fertility level was among the highest on the continent with more than seven children per woman: 7.0 and 7.6 children per woman in 1962 and 1969, respectively (Gould, 1995). Upon gaining independence in 1964, the authorities of Kenya became aware of the impact of rapid population growth on the country's economic development and put in place the first population policy.

The period from 1984 to 1994 was marked by a strong political as well as presidential commitment to reduce population growth as a necessary condition to achieve the country's national development goals (Gould, 1995). The period was marked by the establishment of the National Family Planning program in 1967 and the creation of the National Family Welfare Center in 1976. Unfortunately, the results achieved fell short of the set objectives, and the implementation of the national population policy was met with reluctance at the national level (Iyer & Weeks, 2020). Thus, the first population policy experienced failure, due to strong opposition from the religious and pronatalist camps. Many important decision-makers belonged to these groups, which rejected family planning of any sort. For this reason, attempts to put the population policy into practice remained weak and ineffective in the 1960s and 1970s.

During this period, Kenya benefited from substantial funding and technical support from a range of bilateral and multilateral development partners to improve FP programs and services (Askew et al., 2017). To improve the implementation of the family policy, Population Policy Guidelines were developed in 1984. A National Council for Population and Development was created in the Office of the Vice-President in 1992. In addition, several actions were taken to decentralize population program to districts and to enable subsidized sale of FP commodities (e.g., condoms and pills) in urban areas. The government rapidly expanded the number of health workers trained in family planning as well as the number of outlets where contraceptives could be

obtained. Kenya then became the African leader in promoting FP, and the total fertility rate in Kenya declined from an average of 7.6 births per woman in 1969 to 6.7 in 1989, and then fell even more rapidly, reaching 5.4 in 1993 and 4.7 in 1998.

Since 1994, the conclusions of the Cairo ICPD and its Plan of Action have influenced population policies and reproductive health interventions in Kenya. Several strategic documents were developed to provide guidance on population and the mitigation of population growth. For example, in 1994, the ‘Manage population growth’ document has been adopted as part of the strategic Kenya Health Policy Framework. In 1996, the National Council for Population and Development published its National Population Advocacy and IEC Strategy for Sustainable Development, 1996–2010, the aim of which being to promote the use of modern contraceptive methods among less educated women (Blacker et al., 2005). In 1997, Kenya launched the National Reproductive Health Strategy (1997–2010). However, Kenya’s fertility decline stagnated in the 2000s for several reasons: a persisting high ideal number of children of around four, a decline in external funds while FP programs received limited national funding, and a shift in priorities away from FP promotion and toward HIV/AIDS prevention. The revitalization of the FP agenda in the 2010s and the introduction of a new population and development policy in 2012 illustrate the renewed interest in FP as a key to sustainable population growth (Izugbara et al., 2018). As a result, according to the results of the 2014 DHS survey, the fertility decline resumed, reaching 3.9 children per woman (against 4.9 in 2003), with 58% of married women using a method of contraception and 53% a modern method, one the highest levels of use in the region.

In parallel, Kenya has made considerable efforts in the area of girls’ education, which has contributed significantly to raising girls’ age at marriage and reducing their fertility. In 2004, school fees for the entire 8 years of primary school were abolished and in 2008 the government waived fees for secondary school. A constitutional reform in 2010 defined an eight-year

primary education as a basic right of all Kenyans. Parents who fail to send their children to school incurred a penalty.

Against the backdrop of the Millennium Development Goals and Kenya’s long-term development blueprint, *Kenya Vision 2030*, the government of Kenya is committed to mainstreaming population dynamics, reproductive health, and gender issues into national development strategies (Government of Kenya, 2013). Among the demographic targets of the *Kenya Vision 2030*, explicit priorities include reducing the natural population growth rate of the population from 2.5% in 2009 to 1.5% by 2030, and reducing the total fertility rate from 4.6 in 2009 to 2.6 children per woman by 2030.

The ideal number of children desired by women in Kenya decreased from 4.8 children per woman in 1989 to 3.9 in 2014, which is quite a low level in the SSA region, and the wanted fertility rate (that is the rate which will be observed if only “wanted” births would occur) decreased from 4.5 children per woman in 1989 to 3.0 in 2014. Therefore, it seems not impossible to reach the objective of 2.6 children per woman by 2030, provided that continued efforts are made to provide better quality family planning information and services, in parallel with efforts to increase the education and improve the status of women.

## Ghana

Ghana adopted a population policy at a time when several SSA countries had kept a laissez-faire attitude toward population issues. Ghana’s commitment to population growth issues led to the adoption of a first national population policy in 1969. Ghana was the third SSA country, after Mauritius and Kenya, to prepare such a document. The Planned Parenthood Association of Ghana, founded in 1967 and affiliated with the International Planned Parenthood Federation (IPPF) in London, contributed significantly to the development of this first national population policy (Robinson, 2016).

Ghana’s 1969 Population Policy was entitled *Population Planning for National Progress and*

*Prosperity.* The document affirmed the government's commitment to adopt and implement appropriate strategies and programs to prudently manage population resources and curb population growth. The 1969 population policy was aimed at reducing the country's high population growth rate of 2.4% per annum in 1960–1970 (Kwankye & Cofie, 2015). The policy set specific goals, including the reduction of the annual population growth rate from nearly 3% in 1969 to 1.7% by the year 2000, and called for a multisectoral approach involving all government ministries to achieve that objective (Oliver, 1995).

Unfortunately, no budgetary priority was given to population programs at the time, particularly in a situation where donor funds were declining. The lack of a legislative instrument to support the policy also contributed to the weak performance of the national population program, in a context of great political instability (five coups d'état occurred between 1966 and 1981). Therefore, the results of this first national population policy were limited. Indeed, from 1969 to 1994, little or no progress was made in Ghana to achieve the goals set out in the policy. The total fertility rate (TFR) remained virtually unchanged for 30 years between 1960 and 1988, at 6.9 and 6.7 children per woman, respectively. The main reasons identified at the time were the lack of involvement of key stakeholders, including communities, in the development of the policy and the absence of a clear strategic plan for its implementation.

Nonetheless, Ghana was one of the leading FP advocates on the African continent during the African Population Conferences of the 1980s and 1990s, promoting a dynamic population policy as enshrined in the Kilimanjaro Plan of Action (1984) and the Dakar/Ngor Declaration on Population and Sustainable Development (1992). This commitment to the pursuit of common world population goals remained of paramount importance for the country (Government of Ghana, 1994).

After the failure of the first national population policy of 1969 and following the 1994 ICPD in Cairo, the need for a critical review of the Ghana

population policy became apparent. As a result, the 1969 population policy was revised in 1994, again clearly restating the main challenges addressed and goals proposed in 1969, but also taking into account emerging population and development concerns, as reflected in the ICPD PoA. The 1994 population policy targets were: to reduce the TFR from 5.5 to 5.0 children per woman by 2000 and to 3.0 by 2020; to achieve a contraceptive prevalence rate (CPR) of 15% for modern family planning methods by 2000 and 50% by 2020; and to reduce the annual population growth rate of about 3% to 1.5% by 2020.

The 1994 revised population policy recognized that managing population growth required integrated and well-coordinated multisectoral strategies and interventions. To this end, the policy presented a wide range of implementation strategies to achieve the specified goals and targets. The 1990s and 2000s were also marked by an increase in the supply of reproductive health services. The national fertility level declined from 6.4 children per woman in 1988 to 4.4 in 2003, a decrease of two children per woman in 15 years. But, as in the case of Kenya, Ghana's fertility decline stagnated in the 2000s because of the persisting high ideal number of children at close to five, insufficient funding, and shifts to other priorities. Fertility was still 4.2 children per woman in 2014.

In the 2000s, priority was given to reducing the unmet need for contraceptives in order to meet the fertility preferences and health needs of women and, in doing so, reduce population growth and contribute to the achievement of the MDGs. However, the use of contraceptive methods progressed very slowly among married women, from 20% in 1993 to 27% in 2014 for all methods, though it increased a bit more for modern methods, from 10% to the still low level of 22%.

In parallel, the implementation of education strategies in Ghana to achieve universal primary education for both boys and girls by 2015 has resulted in increased enrolments in primary schools (National Population Council, 2006). Also, Ghana has decided to take steps towards universal health insurance coverage (Saleh,

2012). Ghana, like other African countries, endorsed the African Union's roadmap for capturing the demographic dividend through investment in youth. In 2017, the Government of Ghana's strategy paper on capturing a demographic dividend through investment in youth was launched by President Nana Addo Dankwa Akufo-Addo.

Overall, despite the renewed interest in population matters, the 1994 population policy has not been revised or updated, although none of its objectives set for 2020 have been met. Ghanaian women still have about four children on average (against an objective of three), the use of modern contraceptive methods among married women is estimated by the UN to be around 30% in 2020 (against an objective of 50%), and annual population growth remains at 2.1% (against an objective of 1.5%). It would be useful to analyze the reasons for the fertility stall observed over the past 20 years and the still low use of contraceptive methods among Ghanaian women.

## Rwanda

From 1960 to 1990, Rwanda had an exceptionally high average number of children per woman and then experienced a sharp decline in infant and child mortality. The average number of children per woman was 8.6,<sup>7</sup> 8.1,<sup>8</sup> and 8.4<sup>9</sup> children per woman in 1978, 1981, and 1983, respectively. However, no action had been put in place to curb the population growth rate in Rwanda. One of the reasons was the religious factor: Rwanda had a strong presence of Catholic missions from the colonial period until the 1990s, which opposed any form of modern contraception. However, Catholic missions made a significant contribution to the fight against diseases and thus lowered the mortality levels of infants, children, and women. As a result, Rwanda had in the 1980s one of the highest fertility rates in the

world along with one of the highest population densities in SSA.

Although the problem of population growth had been identified and highlighted before 1960 (Gakusi & Garenne, 2002), it was not until 1990 that Rwanda put in place measures to reduce population growth. In 1990, a first National Population Policy was prepared, aiming to increase the demand for smaller families. However, this was done under pressure from donors without a real appreciation of the relationship between population growth and economic growth on the part of the government. Rwanda's First Population Policy (May et al., 1990) aimed at reducing population growth from 3.6% in 1990 to 2.0% in 2000, decreasing the number of children per woman from 8.5 in 1990 to 4.0 in 2000, and increasing the contraceptive prevalence rate from 13% in 1991 to 48.4% in 2000 (all quite unrealistic objectives).

The economic difficulties resulting from the exceptional population growth rate coupled with the small size of the territory, the decline in soil productivity, and the lack of other economic opportunities outside agriculture exacerbated the demo-economic problems of the country in the early 1990s, with land shortages contributing to social tensions. The period following the 1994 genocide was marked by far-reaching reforms that led to dramatic improvements in health and family planning indicators, with the contraceptive prevalence rate for modern methods among married women increasing from 5.7% in 2000 to 27.4% in 2007. The 2003 National Population Policy was set in the context of managing the consequences of the 1994 genocide, and in an international context marked by the implementation of the 1994 ICPD PoA and the Millennium Development Goals (Ministère de la Santé du Rwanda, 2003). The quantitative objectives of the 2003 population policy included: reducing the total fertility rate from 5.8 in 2000 to 5.0 children per woman in 2010 and 3.0 in 2020; reducing the population growth rate from 2.8% in 2000 to 2.5% in 2010 and 2.2% in 2020; increasing the modern contraceptive prevalence rate from 5.7% in 2000 to 20% in 2010 and 80% in 2020 (an overambitious goal); and ensuring the

<sup>7</sup> Rwanda 1978 Census.

<sup>8</sup> Rwanda 1981 Enquête démographique.

<sup>9</sup> Office National de la Population. (1983) "Rwanda 1983 Enquête sur la Fécondité." Kigali: ONAPO.

continued availability of a wide range of contraceptive methods (Ministère de la Santé du Rwanda, 2003). The importance of family planning service provision as a rationale for national development found strong support at the senior government leadership level. Two main reasons for the success of FP in Rwanda were: (i) a strong government vision, leadership, and commitment to family planning that had systematically created and sustained an enabling environment; and (ii) effective strategies and approaches affecting the health and financing systems in the country that addressed supply problems among providers, health delivery systems, and commodities as well as the demand side. Rwanda's vision for economic development included smaller family size as a key component.

Great progress in family planning and reproductive health was made in the 2000s and the 2010s, thanks to the political commitment towards achieving the United Nations Millennium Development Goals (MDGs) and other international commitments, on the one hand, and to addressing the country's very high population density, considered one of the greatest challenges to sustainable development, on the other (Ministère de la Santé du Rwanda, 2012). Since 2007, family planning has been declared a priority program to help reduce the high rate of population growth undermining the government's development efforts. Thus, an intensive public education campaign was launched to raise awareness of the need to reduce the population growth rate. All key staff and leaders, including local administrators and health personnel, have been sensitized. The network of Rwandan parliamentarians on population and development, established in 2003, played a key role in reaching out to lower administrative units. Various media channels were used, including television and radio, as well as monthly discussions after the *Umuganda*, which is a national holiday in Rwanda taking place on the last Saturday of every month for mandatory nationwide community work. The *National Population Policy for*

*Sustainable Development* 2003 was produced after revising the earlier 1990 population policy document. It took into account Rwanda's adoption of the resolutions of the 1994 ICPD in Cairo. The policy presented a multi-sectoral approach to improving the population's quality of life and reducing the population growth rate, while also focusing on economic growth, food security, health, education, human resource development, rational management of the environment, and good governance. It presented a number of quantitative targets consistent with those presented in the *Vision 2020* document and the Poverty Reduction Strategy Papers (Ministère de la Santé du Rwanda, 2012). As a result of the actions made to mitigate its rapid population growth, Rwanda experienced a significant decline in fertility, which fell from 6.1 children per woman in 2005 to 4.5 in 2010 (a 25% decline).

Despite these remarkable achievements, Rwanda continues to face in 2020, according to UN estimates, a rapidly growing population of 2.5%, a high population density of 525 persons per square kilometer (the second highest density after Mauritius among SSA independent countries), a still high fertility rate of about four children per woman, and a high demographic dependency ratio of 74 dependents (aged less than 15 years and more than 65 years) for every 100 persons aged 15–64 years, all of which have led to less than desired results on poverty reduction levels (World Economic Forum, 2014). However, the ideal number of children was 3.6 in 2015 (one of the lowest in the region) and the wanted fertility rate (the rate that would be observed if only "wanted" births would occur) was 3.1 children. This means that there is room for further fertility decline through even better performance of the health system and family planning program, even if the over-ambitious goals of the 2003 population policy for 2020 were not met, namely a fertility rate of three children per woman, a population growth rate of 2.2%, and a modern contraceptive prevalence rate of 80% (against an estimated prevalence of 52%).

## Ethiopia

With 115 million inhabitants in mid-2020, Ethiopia is the third most populous country in SSA after Nigeria and the Democratic Republic of the Congo. In the 1960s and 1970s, the country had no explicit population policy despite growing evidence about the links between population pressure and natural resource depletion in Ethiopia (Patterson, 2007). As a result, Ethiopia's population, estimated at 28 million in 1970, was growing at 2.65% per annum. By 1990, the population had increased to 48 million and the annual growth rate was 3.0%. High fertility combined with declining mortality generated rapid population growth and a very young age structure. Family planning services began in 1966 with the establishment of the Family Guidance Association of Ethiopia, an affiliate of the IPPF. However, it was not until the 1980s that the Federal Ministry of Health (FMOH) added family planning to its maternal and child health program (USAID/Africa Bureau, 2012).

Prior to the early 1990s, population policy was not a priority in Ethiopia, largely because of doubts about the role of population factors in development and also because of the political instability of the 1970s and 1980s. In addition, the lack or the poor quality of fertility data did not help political leaders take steps to mitigate population growth in the country. Indeed, there were two major difficulties in studying past fertility trends. The first was the lack of detailed data describing fertility and its determinants, and the second was that existing population data were marred by reporting errors typical of less developed countries (Bekelle & Assefa, 2010). However, by the early 1990s the internal factors of population pressure and economic hardship, on the one hand, and external factors related to donor pressure and international commitments to mitigate population growth, on the other, had combined to raise awareness about the need to develop a national population policy.

Indeed, following the recommendations of the Mexico City and Rio conferences, the Transitional Government of Ethiopia developed the country's

population policy with the support of the United Nations Population Fund (UNFPA). The population policy was launched in July 1993, prior to the 1994 ICPD in Cairo. The policy aimed to harmonize the population growth rate with the economic growth rate and the country's capacity to achieve sustainable socioeconomic development, along with the general objective of improving the general welfare of the population. Based on a thorough analysis of the impact of population growth and the "excessive fertility" of the country, the 1993 Population Policy set up several specific objectives. Among these, one should note in particular: reducing the total fertility rate from 7.7 children per woman to approximately 4.0 by the year 2015; increasing the prevalence of contraceptive use from the current 4.0% to 44.0% by the year 2015; and reducing maternal, infant, and child morbidity and mortality rates, which were recognized to be partially the result of high fertility and the low status of women. Among the strategies listed to reach the general and specific objectives of the policy were: expanding clinical and community based contraceptive distribution services, raising the minimum age at marriage for girls from 15 to at least 18 years, implementing counselling services in the educational system, and making population and family life-related education and information widely available (Transitional Government of Ethiopia, 1993).

In the decade following the adoption of the population policy, its implementation has encountered several problems related to the lack of resources, limited institutional capacity as well as weak political commitment for its implementation. However, efforts have been made to develop sectoral policies in line with the objectives of the national population policy. As such, the government adopted the national policy on women (September 1993), the health policy (September 1993), the education and training policy (April 1994), and the environment policy (April 1997). Also, the revised Family Code 2000 set 18 years as the minimum legal age of marriage. However, because of lack of enforcement, this rule is largely ignored, and marriages before 18 years remain common.

During the 2000s, the government of Ethiopia made massive investments to develop health infrastructure, including the construction of new health centers and posts. These investments and the construction of new roads have significantly improved access to health services. The government also deployed more than 35,000 Health Extension Workers (HEWs) to promote health services in the rural areas, including family planning services. The impressive growth in family planning infrastructure and contraceptive use in Ethiopia, particularly among rural populations, is the result of a concerted effort by high-level policymakers down to the local level, the development of an innovative delivery system (the HEWs), and the improvement of the health system as a whole. Support for family planning began at the top, with the national government leading the way for local efforts.

Ethiopia's high rates of population growth thus declined from a peak of 3.5% per year in the early 1990s to 3.0% in the late 1990s, and then declined further to 2.8% between 2005 and 2010, and to 2.6% over the period 2015–2020. The total fertility rate (TFR) has declined rapidly from a peak of 7.7 children per woman in 1990 to 5.5 in 2000 and 4.6 in 2016, not too far from the ambitious objective of about four children per woman set up for 2015. The use of modern contraceptive methods among married women also increased rapidly, from 8.1% in 2000 to 35.9% in 2016. Although the objective of 44.0% of users by the year 2015 was not reached, this result corresponds to a quite rapid increase of contraceptive use of 1.7%age points per year, one of the highest in the region. Also, the under-five mortality rate has been cut by two-thirds, from 156 deaths per 1000 live births in 1995–2000 to just 55 in 2015–2020.

These performances are also the result of increased education levels among women, and actions to raise women's empowerment, gender equality, and sustainable development (Shetty & Hans, 2015). These factors are now increasingly recognized as key factors in reducing fertility. Indeed, the gender gap in education has been a problem in all the least developed countries and

remains particularly acute in SSA. In Ethiopia, many girls, especially those from poor families or those living in rural or remote areas (with limited access to nearby schools considered safe), have not been able to attend school. Gender equality and equity and women's empowerment are a fundamental prerequisite for the achievement of sustainable development.

Since the promulgation of the population policy in 1993, a number of sector specific policies and programs have been designed and adopted, as a result of which the country has made steady progress in expanding access to education and health services, gender equity, equality, and women's empowerment and economic growth and development. Accordingly, significant progress was made towards meeting the many of the objectives of the policy. However, there are a number of continuing and emerging challenges that have impeded the more effective implementation of the policy (Hailemariam, 2016). Overall, the fertility decline has been particularly rapid, as well as the increase in use of contraceptive methods.

Yet, the pursuit of fertility decline in Ethiopia is not guaranteed. First, the 1993 population policy has not been revised or updated. Next, survey data indicate that the ideal number of children was still high at 4.9 in 2016, even if the wanted fertility rate (that is the rate which would be observed if only "wanted" births would occur) was 3.6. This means that there is a need for better performance of the health system and family planning program. Indeed, the possibility of a fertility stall at around four children per woman, as observed in several SSA countries, cannot be excluded. With an estimated rate of population growth of 2.5% in 2020, and a dependency ratio of 77 dependents (aged less than 15 years and 65 years) for every 100 persons aged 15–64 years, Ethiopia is not yet in a position to harvest a first demographic dividend. Further efforts to accelerating the fertility transition and the corresponding changes in the age structure are still needed to ensure that Ethiopia can fully benefit from a first demographic dividend in a not-too-distant future.



## Burkina Faso

The various economic crises and the many African and international conferences on issues related to population, women, and children also led Burkina Faso, independent since 1960, to finally commit itself, starting in the 1990s, to mitigate population growth and fertility and promote family planning. During the period 1960–1991, Burkina Faso (known as Upper Volta until 1984) gave greater importance to building the new nation, emphasizing economic growth and development of the neo-liberal type but with strong state intervention through the creation of mixed capital enterprises. Between 1960 and 1981, the country experienced relative economic prosperity despite several military coups between 1960 and 1987, with economic growth rates averaging 3.2% per year (but only 1.4% growth of GDP per capita, because of population growth of 1.8% per year).

This relatively good economic performance was due to the agricultural sector, which remained relatively buoyant because it had been considered a priority sector since 1960. The revolutionary period of the military leader Thomas Sankara (1982–1987) reinforced the optimism regarding endogenous development or “relying on one’s own forces”, with little reference to demographic issues. Yet, with this economic progress, fertility in Burkina Faso had increased from 6.2 children per woman in 1960 to 7.2 in 1985. The “revolutionary” movement helped Burkina Faso to avoid, until 1991 (several years later), the abrupt measures of the structural adjustment programs (SAPs) (Somé, 2007). Between 1982 and 1987, Burkina Faso even recorded an average economic growth rate of 4.5% per year, compared to an average population growth of 2.6% (Ministère de l’Économie et des Finances, 2000). However, persistent economic difficulties and international conferences on population issues enticed Burkina Faso to prepare its first population policy.

The decades from 1990 to 2010 were marked by a commitment to mitigate population growth and promote family planning. From 1985, in the

wake of the promotion of the status of women and conferences on population and development issues (such as those held in Arusha and Mexico City in 1984), Burkina Faso legalized the use of modern contraceptives and adopted a first family planning action plan in 1986. However, the first national population policy (PNP) did not emerge until 1991. Quite ineffective, this policy was revised in 2000 to take into account the new context created by the ICPD in Cairo in 1994, the Beijing Conference on Women in 1995, and, above all, the MDGs and the new paradigm of poverty reduction promoted by international development agencies. The first *Politique nationale de population* (PNP) was a mini-plan for socioeconomic development that sought to act on all fronts through 24 strategic objectives. These were eventually reduced to six under the revised PNP in 2000, which focused more on improving reproductive health than on reducing fertility. In fact, the 2000 PNP did not include a fertility objective but listed a family planning objective which, through five-year priority action programs (PAPs), should enable Burkina Faso to achieve a modest contraceptive prevalence rate for modern methods of 19% by 2015, compared to 5% in 1998 (Ministère de l’Économie et des Finances, 2000). However, the continued increase of the rural population exacerbated the pressure on the land and the rapid urbanization of Burkina Faso (from 5% of the population to 31% in 2020). This was coupled with the rise in the level of education and, to some extent, the promotion of reproductive health and family planning. As a result, infant and child mortality declined modestly as well as fertility levels (from 6.5 children per woman in 1993 to six in 2010). These changes were considered slow and led, among other reasons, to the adoption in 2010 of a new and more ambitious PNP.

From 2010 onwards, there was greater political commitment to reducing population growth and capturing a demographic dividend. Unlike the other PNPs, the 2010 PNP was more ambitious, particularly in terms of population, with a population growth target that was expected to fall from 3.1% per year in 2006 to 2.25% in 2030. To

achieve this, it was projected that infant and child mortality should continue to fall to 61.9 per thousand, while fertility should also fall, to 3.6 children per woman in 2030 compared to 6.2 in 2006 (Ministère des Finances, 2010). However, in order to achieve this, the country set itself the ambition of achieving a performance (quite high in the African context) of an increase in contraceptive prevalence (modern methods) of 1.5% age points per year, with a view of reaching a contraceptive prevalence of 51.5% in 2030 against 15% in 2010 (INSD and ICF International, 2012).

Burkina Faso is currently more or less on the right track to achieve these ambitious objectives. According to the PMA 2020 (Performance Monitoring and Accountability) survey, round six (ISSP, 2019), the contraceptive prevalence for modern methods among women in union aged 15–49 years was 30.7% at the end of 2018. This represents about two percentage points increase per year since 2010. Reaching the objective of 51.5% in 2030 requires an average percentage point increase per year of 1.7 from 2018 to 2030. According to the last survey results, fertility has decreased from six children per woman in 2010 to 5.2 in 2017. And the population growth rate has started to decline from its maximum of 3% per year in the 2005–2010 period.

However, reaching the objectives of the 2010 population policy requires strong continued efforts to promote the use of contraception. Also, a revision of the 2010 PNP might be necessary to better integrate factors (education, health, and employment) that are favorable to further fertility decline and to the opening of the demographic window of opportunity. Such a revision will make it possible to take into account the African ambitions asserted by the African Union through, in particular, the African Union's *Agenda 2063* issued in 2015, the United Nations *Agenda 2030*, and the Addis Ababa *Declaration on Population and Development Beyond 2014*, which all focus on capturing a first demographic dividend.

However, this will not be easy, because the mean ideal number of children is probably still high (5.8 children in 2010), and also because

more frequent terrorist activities in Burkina Faso since 2016 may divert the country's efforts and resources to security actions at the expense of the programs fulfilling the health, education, and development needs of the population.

## Niger

Niger holds the world fertility record, with a total fertility rate (TFR) of 7.6 children per woman in 2012. The country's mainstream of thinking on population issues can be divided into two main periods: the first period runs from 1960 to the 1980s and the second period begins around 1985 and is continuing with more or less clearly stated commitments.

The period 1960–1985 was a period of non-interventionism or a *laissez-faire* policy regarding demography. During this period, which began after the proclamation of Niger's independence in 1960, the rapid growth of Niger's population was not perceived as a worrying problem and good economic growth was able to accommodate the high population growth of the time. What characterized the 1960s until the mid-1980s was the deliberate absence of state intervention to mitigate population growth.

From 1985 to the present, the need for national reflection on the impact of high population growth on economic growth has fueled the political discourse, and documents and policies to mitigate population growth have been developed, although with some variations over time. From 1980 and the following years, the fall in the international price of uranium (the main export product) and its demand contributed to a drastic drop in Niger's revenue, leading to an economic crisis in the country, aggravated by some years of poor agricultural production. President Kountché anticipated the structural adjustment measures of the World Bank and the IMF by taking measures from the mid-1980s to control public expenditure, with a reduction in the state's budget. Several years of recession, coupled with adjustment measures imposed by the international financial institutions, led the political authorities to consider for the first time Niger's rapid population

growth (over 3% per year at the time<sup>10</sup>) as an obstacle to development. The Head of State became a kind of a neo-Malthusian when he made a historic speech in 1985 in Matameye in which he launched “*an appeal in favor of family planning*” in Niger. The president’s speech was followed by the adoption in 1988 of the first measures in favor of family planning for Nigerien couples. The 1987–1991 development plan reinforced the new national guidelines for mitigating population growth by emphasizing that the demographic challenge seriously jeopardized the country’s future, in connection with slow economic growth, which is often insufficient to meet the population’s various and ever-increasing needs, particularly those of food (Ministère du Plan, 1987). However, the stated desire to mitigate population growth relied more on incentives than coercion, so as not to offend the sensitivities of the highly Islamized population. It should be pointed out that the international and African context in particular was also prompting African countries to become aware of demographic issues and to adopt measures to mitigate population growth, while at the same time emphasizing the improvement of the general living conditions of the population.

Seven years after President Kountché’s recognition of the challenge posed to the country by its rapid population growth and of the need to address it, Niger adopted a *National Population Policy Declaration* (DPNP) in 1992. This DPNP was adopted, on the basis of the “*observation of the ineffectiveness of development policies so far implemented*” and also of the low economic growth rates in the face of the constant increase in population, whose growth exceeded 3% per year. Therefore, the DPNP had to aim at “*controlling population growth and migratory flows, but also at ensuring that population growth and economic development are in line with each other, in order to improve the quality of life and standard of living of the people of Niger*” (Ministère du Développement Social, de la Population, de la Promotion de la Femme et de la

Protection de l’Enfant, 1992: 7). However, after 15 years (1992–2006) of implementation, the overall annual rate of population growth has remained virtually unchanged. Several factors account for the overall underperformance of DPNP, particularly in relation to fertility and population growth. These include major political instability between 1992 and 2006, with two military coups d’état (in 1996 and 1999) that reshaped national leadership, insufficient mobilization of the financial, human, and material resources to back the DPNP (May et al., 2004), coordination problems, and a hostile Islamic environment with religious associations opposed to adopting a new modern Family Code to replace the rules laid down in the Koran and by the former colonial power. In addition, the persistence at the time of a high level of under-five mortality and a low age at first marriage, especially in rural areas that are strongly pronatalist, were also obstacles for couples to have less children.

In view of the continuing high fertility and population growth in a context of endemic poverty and economic difficulties, the government adopted a new Population Policy Statement in February 2007. This second population policy was based more on population targets than the previous one. On the basis of a negative diagnosis of the demographic pressure on economic and natural resources, the government’s Population Policy Declaration also aimed primarily at mitigating fertility and population growth. The main expected results were to reduce by 2015 “*the average number of children per woman from seven to five*” and to reduce “*the population growth rate from 3.3 percent to 2.5 percent*”. To achieve this, the document recommended increasing modern contraceptive prevalence from “*15 percent to 20 percent [instead of five percent in the base year 2006] at the couple level, reducing the proportion of early marriages by about one third (1/3) and increasing prolonged breastfeeding*” (Ministère de la Population et de l’Action Sociale, 2007: 13).

Once again, this population policy and its action plan, implemented, among other things, through a multisectoral demographic program

<sup>10</sup> About 3.4%, according to the intercensal estimate 1977–1988 (INS, 2015).

(PRODEM), found it impossible to change the average number of children per woman, which has not been reduced to five children. Not only has fertility remained above seven children, but it even increased, to reach the world-record figure of 7.6 children per woman. Also, the results of the 2012 census revealed an increase of the population growth rate to 3.9% per year between the 2001 and 2012 censuses, against 3.3% between the 1988 and 2001 censuses (INS, 2015). The use of modern contraceptive methods did not increase as expected, passing from 4.5% in 2006 among women in union aged 15–49 to only 8.3% in 2012 (MAMA excluded<sup>11</sup>) (Guengant & Issaka, 2017), even though modern contraceptives have been free of charge in public health facilities since 2006. However, it should be mentioned that the significant drop in under-five mortality has been one of the greatest successes of the health policy. Indeed, even if it is still relatively high, the probability of dying among children under 5 years of age has fallen from 198 per thousand in 2006 (INS and Macro International, 2007) to 127 per thousand in 2012 (INS and ICF International, 2013), thanks to programs implemented by the Ministry of Health. This progress, which has yet to be sustained, is considered necessary to achieve the fertility decline (as women will only have fewer children when assured that more of them will survive) and to accelerate the demographic transition in the country.

Since 2011, the government of Niger has shown a greater interest in fertility reduction, family planning, and harvesting a first demographic dividend. Through several important speeches, President Issoufou Mamadou considered the issue of Niger's demographics as one of his priorities and challenges. Steps have been taken to increase schooling of children up to 16 years of age, especially for girls in order to avoid early marriage. Also, Niger, with some other African countries including Burkina Faso, Chad, Côte d'Ivoire, Mali, Mauritania, Cameroon, and Guinea, benefits from the impetus of the World Bank regional project "*Sahel*

*Women's Empowerment and Demographic Dividend*" (SWEDD). Finally, in August 2019, a new population policy was adopted.

Within the framework of the "*Vision Niger 2035*" adopted in 2017 with the objective of achieving sustainable, ethical, equitable, and balanced development of the country so that Niger can become an emerging economy, the population policy of 2019 intends to achieve Objective 3 of the Vision, namely the control of the levers of population growth. More specifically, the population policy aims at "*building a nation where citizens have responsible behavior towards their reproduction, their children and all aspects of their daily life*" in order to create the necessary conditions for Niger to benefit fairly quickly from a first demographic dividend.

The main results expected from the implementation of this new policy are: a reduction of the average ideal number of children from 9.2 to about four children in 2035; and an increase in the demand for contraception and its use by 50% of women in union in 2035 (against 8.8% in 2012). This should make it possible to reduce fertility from 7.6 children per woman in 2012 to about four children per woman in 2035, and to reduce high-risk pregnancies from 83% in 2012 to 40% in 2035. Also, thanks to the previous results, the population policy intends to contribute to, and build on, the improvement of the quality of the country's human capital along with a greater empowerment of women.

The disappointing results of the previous population policies do not necessarily impede the successful implementation of the 2019 policy. But the task ahead is daunting. To be sure, the increase in use of modern contraceptive methods has accelerated since 2012, to more than one percentage point per year according to the PMA 2020 survey results for 2017. But reaching the 2035 objective requires an acceleration of this increase to about 1.8 percentage points per year. This will be difficult if the demand for family planning concerns only 40% of the women (about half of what it should be), with about 90% of this demand coming for increased spacing while still associated with an ideal number of children of nine, as it is the case now. This

<sup>11</sup> The MAMA or Breastfeeding and Amenorrhea Method was not included in the 2006 DHS survey.

difficulty has been anticipated by the 2019 policy of which the title is: “*A responsible parenthood with healthy children, well-educated young people for a prosperous Niger*” which makes no mention of smaller families, despite the policy seeking to achieve by 2035 an ideal number of children of about four, associated with a contraceptive prevalence rate of about 50% (Ministère de la Population, 2019). But to change the present deeply anchored pronatalist attitudes in the Nigerien society will require different sensitization messages and much stronger efforts than in the past to promote the use of contraception for the better health of women and children and a real empowerment of women. Unfortunately, as in Burkina Faso, there is a risk that more frequent terrorist activities, which led to placing several regions of Niger under a “state of emergency”, will relegate demographic issues to a lower priority.

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## Conclusion

The dominant idea up to the late 1970s that rapid population growth and large populations were beneficial to development proved to be wrong. Indeed, because of its high population growth, sub-Saharan Africa’s GDP per capita grew much more slowly (less than 50% between 1960 and 2018) than the GDP per capita of the other developing regions. So, whereas SSA’s GDP per capita was estimated in 1960 to be three times higher than the GDP per capita of East Asia and South Asia, by 2018 this had reversed, with East Asia and South Asia having GDP per capita way above the SSA GDP per capita. Indeed, while both have made progress, GDP per capita in East and South Asia and SSA were 22 times and six times higher, respectively, than in 1960, thanks largely to the population policies put in place in Asia, which led to rapid fertility declines and the achievement or quasi-completion of the demographic transition and realization of a demographic dividend.

Nonetheless, the late awareness in 1980s of the importance of reducing demographic growth to allow an increase of the level of living standards of the population, and of the benefits of family

planning for the betterment of mother and children’s health, triggered the beginning of the fertility decline in most countries of the region. However, whereas many observers thought that sub-Saharan African countries would soon catch up with the rapid fertility transitions observed elsewhere in the less developed world, this did not happen.

Although the policies put in place accelerated the decline of infant and child mortality,<sup>12</sup> this (contrary to the expectations) did not translate into substantial fertility declines as was observed elsewhere in the less developed world. Indeed, the decline of fertility was quite slow in most SSA countries and in 2020, about 85% of the SSA population live in countries where women have still between four and seven children. The reasons for this slow (and uneven) decline of fertility are multiple. Among those commonly documented in the literature are: the low levels of development (such as the low levels of education, urbanization, and status of women), the pronatalist attitudes of most SSA societies (reflected by the high number of ideal number of children mentioned by women and men in the surveys), and the weakness of most family planning programs (i.e., limited number of health centers and outlets to get contraceptive, lack of staff properly trained to promote family planning, stockouts, etc.). Several countries have established population policies without a real conviction about their importance and sometimes under pressure from international organizations. But other reasons that explain the slow fertility decline are the lack of a clear policy vision and steadfast political commitment from most political leaders, as well as the low visibility and inappropriateness of communication campaigns promoting family planning.

Regarding the commitment of political leaders, the examples of Kenya and Ghana show that the uneven support of the Presidents and their Ministries explain to a large extent the relatively unsatisfactory results of the interventions. Indeed,

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<sup>12</sup> It is still too early to assess the impact of the COVID-19 pandemic on both mortality and fertility trends in sub-Saharan Africa.

despite the adoption of their first population policies some 50 years ago, the total fertility rates in these countries are still around four children per woman, far from the completion of the fertility transition, and the ideal number of children given by Kenyan women is still around four, only one child less than in 1989, and close to five children for Ghanaian women, against 5.5 in 1988. By contrast, in the case of Rwanda, although the context is different, the continuous strong support of the President over the past 20 years, coupled with the active involvement of the high levels civil servants including at the local level, have led to a quite rapid fertility decline, as well as to a lower ideal number of children (3.6 in 2015), a likely consequence of the intensive public education campaign on population problems.

Globally, SSA political leaders have not been very proactive in supporting fertility reduction interventions, family planning programs, and population institutions. Even when they were convinced of the necessity to reduce population growth and promoting family planning, they often did not intervene because they did not want to antagonize their constituencies and create political problems with their opponents. In any case, governments generally allocated few national resources to population and family planning activities, because external funding was available. So, despite the commitments made at regional and international conferences, questions relating to the management of fertility and family planning are still not real priority issues in most sub-Saharan African countries. However, this is not too surprising, because besides population problems, there are many urgent other priorities SSA governments need to address.

Concerning the communication campaigns, they are generally concentrated at some periods of the year, whereas they should be continuous all year long. Also, the messages delivered focus in most countries on spacing birth, without insisting on the need or more responsible reproductive behavior and on the benefits that smaller family size can bring to the wellbeing of women, couples, and their children in improving their chances to have access to better quality health

and education services. Therefore, it is imperative to adopt new approaches to family planning. The time has come to get away from promoting family planning primarily as a mean to better spacing in order to get high numbers of children. In the present SSA context, continuing to promote family planning essentially as a means to space births guarantees that many countries will see their fertility stall around four children per woman, as is already the case in several countries. Finally, it must also be clear that accelerating the fertility transition is necessary to create the conditions for the countries of SSA to benefit from a first demographic dividend. This could involve: (i) a strong political commitment by leaders to support family planning programs and the improvement of the status of women (education and empowerment); (ii) the need to review the messages, their targets, the channels, and the content of the communication campaigns; and (iii) the promotion of family planning not only as a means of birth spacing but also as a responsible choice in terms of the number of children desired.

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## References

- African Development Bank. (2000). *Policy on population and strategies for implementation*. AfDB.
- Amin, S. (1971). Under-populated Africa. In *Paper prepared for the African population conference, Accra, 9–18 December 1971*. United Nations, African Institute for Economic Development and Planning (IDEP).
- Askew, I., Maggwa, N., & Obare, F. (2017). Fertility transitions in Ghana and Kenya: Trends, determinants, and implications for policy and programs. In J. B. Casterline & J. Bongaarts (Eds.), *Fertility transition in Sub-Saharan Africa* (Population and Development Review 43 (Suppl)) (pp. 289–307).
- Bekelle, S., & Assefa, H. (2010). Population dynamics and environment in Ethiopia; an overview. *Ethiopian Environment Review*, 1, 23–60.
- Bernstein, S., Hardee, K., May, J. F., & Haslegrave, M. (this volume). Chapter 15: Population institutions and international population conferences. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Blacker, J., Opiyo, C., Jasseh, M., Sloggett, A., & Ssekamatte-Ssebuliba, J. (2005). Fertility in Kenya and Uganda: A comparative study of trends and determinants. *Population Studies*, 59(3), 355–373.

- Caldwell, J. C., Orubuloye, I. O., & Caldwell, P. (1992). Fertility decline in Africa: A new type of transition? *Population and Development Review*, 18(2), 211–242.
- Chimbwete, C., Watkins, S. C., & Zulu, E. M. (2005). The evolution of population policies in Kenya and Malawi. *Population Research and Policy Review*, 24(1), 85–106.
- Eager, P. W. (2004). From population control to reproductive rights: Understanding normative change in global population policy (1965–1994). *Global Society*, 18(2), 145–173.
- Gakusi, A. E., & Garenne, M. (2002). *Contexte Economique et Socio-Politique de la Santé Publique au Rwanda: De 1900 à 1992* (Les Dossiers du CEPED No. 69). Centre français sur la Population et le Développement (CEPED).
- Gould, W. T. S. (1995). Ideology and data analysis in African population policies: The case of Kenya. *Applied Geography*, 15(3), 203–218.
- Government of Ghana. (1994). *National population policy* (Rev. ed.). National Population Council.
- Government of Kenya. (2013). *Kenya population situation analysis*. Government of Kenya.
- Guengant, J. P. (2017). Africa's population: History, Current status, and projections. In H. Groth & J. F. May (Eds.), *Africa's population: In search of a demographic dividend* (pp. 11–31). Springer.
- Guengant, J. P. (2019). Afrique subsaharienne: faut-il accélérer la baisse de la fécondité pour atteindre le dividende démographique et l'émergence économique? In D. Delaunay & J. P. Guengant (Eds.), *Le dividende démographique en Afrique subsaharienne. Institut d'étude du développement économique et social* (Monographies Sud-Nord No 9) (pp. 90–103). Université Paris 1 "Panthéon Sorbonne".
- Guengant, J. P., & Issaka, M. I. (2017). *Bilan des activités de planification familiale au Niger depuis les années 1990* (Coll. Monographies Sud-Nord No. 4). IEDES – Université Paris 1 "Panthéon Sorbonne".
- Haillemariam, A. (2016). Implementation of the population policy of Ethiopia: Achievements and challenges. *Population Horizons*, 13(1), 19–30.
- INS. (2015). *Rapport sur l'état et la structure de la population. Recensement général de la population et de l'habitat 2012*. Institut national de la statistique.
- INS & ICF International. (2013). *Enquête Démographique et de Santé et à Indicateurs Multiples du Niger 2012*. INS et ICF International.
- INS & Macro International. (2007). *Enquête Démographique et de Santé et à Indicateurs Multiples du Niger 2006*. Institut National de la Statistique du Niger (INS) & Macro International.
- INSD & ICF International. (2012). *Enquête Démographique et de Santé et à Indicateurs Multiples du Burkina Faso 2010*. Institut National de la Statistique et de la Démographie du Burkina Faso (INSD) & ICF International.
- ISSP. (2019). *PMA 2020 au Burkina Faso, Indicateurs-clés de planification familiale, novembre 2018-janvier 2019 (vague 6)*. Institut Supérieur des Sciences de la Population (ISSP).
- Iyer, S., & Weeks, M. (2020). Social interactions, ethnicity, religion, and fertility in Kenya. *Journal of Demographic Economics*, 86(3), 329–365.
- Izugbara, C. O., Wekesah, F. M., Tilahun, T., Amo-Adjei, J., & Tsala Dimbuene, Z. T. (2018). *Family planning in East Africa: Trends and dynamics*. African Population and Health Research Center (APHRC).
- Kobiané, J. F., & Bougma, M. (2017). Countries with fertility transitions in progress. In H. Groth & J. F. May (Eds.), *Africa's population: In search of a demographic dividend* (pp. 113–129). Springer.
- Kwankye, S. O., & Cofie, E. (2015). Ghana's population policy implementation: Past, present and future. *Etude de la Population Africaine*, 29(2), 1734–1748.
- May, J. F. (2013). *Agir sur les évolutions démographiques*. Académie royale des Sciences, des Lettres et des Beaux-Arts de Belgique, coll. "Académie en poche", No. 22.
- May, J. F. (2019). Population policy. In D. L. Poston Jr. (Ed.), *Handbook of population* (2nd ed., pp. 875–899). Springer.
- May, J. F., Mukamanzu, M., & Vekemans, M. (1990). Family planning in Rwanda: Status and prospects. *Studies in Family Planning*, 21(1), 20–32.
- May, J. F., Soumana, H., & Guengant, J. P. (2004). *Nourrir, soigner et éduquer tous les Nigériens, la démographie en perspective*. World Bank Group.
- Ministère de l'Économie et des Finances. (2000). *Politique nationale de population du Burkina Faso*. Conseil national de la population.
- Ministère de la Population. (2019). *Politique nationale de population, Une parenté responsable avec des enfants bien portants, une jeunesse bien formée pour un Niger prospère*. République du Niger.
- Ministère de la Population et de l'Action Sociale. (2007). *Déclaration du Gouvernement en matière de politique de population 2007–2015*. République du Niger.
- Ministère de la Santé du Rwanda. (2003). *Politique nationale de la population pour le développement durable au Rwanda*. Ministère de la Santé du Rwanda & Office national la population.
- Ministère de la Santé du Rwanda. (2012). *Family planning policy*. Ministère de la Santé du Rwanda.
- Ministère des Finances. (2010). *Avant-Projet, Politique nationale de population 2010–2030*. République du Burkina Faso.
- Ministère du Développement Social, de la Population, de la Promotion de la Femme et de la Protection de l'Enfant. (1992). *Déclaration de politique nationale de population*. République du Niger, Direction de la population.
- Ministère du Plan. (1987). *Plan de développement économique et social du Niger 1987–1991*. République du Niger.
- Mueni, E. (2017). *Harnessing the demographic dividend in Sub-Saharan Africa: Political commitment or rhetoric?* AFIDEP Blog. <https://www.afidep.org/harnessing-demographic-dividend-sub-saharan-africa-political-commitment-rhetoric>. Accessed 22 Dec 2021.
- Ngondo a Pitshandenge, S. (1994). Politiques et programmes de population en Afrique: précisions des

- objectifs et adéquation des moyens. In F. Gendreau, D. N. Kikhela, & V. Guérin (Eds.), *L'Évaluation des politiques et programmes de population* (pp. 99–109). AUPSELF-UREF, John Libbey Eurotext.
- Nowrojee, S., Gupta, G. R., & Rakh, P. (2020). *Women's empowerment and rights-based family planning: The distance travelled and the path ahead*. UN Foundation.
- Oliver, R. (1995). *Contraceptive use in Ghana: The role of service availability, quality, and price*. World Bank Group.
- Patterson, K. P. (2007). *Integrating population, health, and environment in Ethiopia* (Policy Briefs in PRB's "Making the Link" Series No. 1). Population Reference Bureau.
- Population Reference Bureau. (2008). *Updating reproductive health legislation in West Africa*. Population Reference Bureau.
- Renne, E. P. (2016). Interpreting population policy in Nigeria. In R. Solinger & N. Mie (Eds.), *Reproductive states: Global perspectives on the invention and implementation of population policy* (pp. 260–289). Oxford University Press.
- Richard, F., Antony, M., Witter, S., Kelley, A., Sieleunou, I., Kafando, Y., & Meessen, B. (2013). Fee exemption for maternal care in Sub-Saharan Africa: A review of 11 countries and lessons for the region. *Global Health Governance*, VI(2), 1–21.
- Robinson, R. S. (2015). Population policy in Sub-Saharan Africa: A case of both normative and coercive ties to the world polity. *Population Research and Policy Review*, 34(2), 201–221.
- Robinson, R. S. (2016). Population policy adoption in Sub-Saharan Africa: An interplay of global and local forces. *Population Horizons*, 13(1), 9–18.
- Saleh, K. (2012). *A health sector in transition to universal coverage in Ghana* (World Bank Study). World Bank Group.
- Seltzer, J. R. (2002). *The origins and evolution of family planning programs in developing countries*. RAND Corporation.
- Shetty, S. S., & Hans, V. B. (2015). *Role of education in women empowerment and development: Issues and impact*. Conference SAMPRATHI 2015 national seminar on education for building people's capacity towards sustainable development. St Aloysius College.
- Somé, S. A. (2007). *La question du développement économique au Burkina Faso* (Série documents de travail DT-CAPES N° 2007–36). Centre d'Analyse des Politiques Économiques et Sociales (CAPES).
- Transitional Government of Ethiopia. (1993). *The national population policy of Ethiopia*. Office of the Prime Minister.
- Turbat, V. (this volume). Chapter 19: Policies needed to capture demographic dividends. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- U.S. National Academies of Sciences. (2016). *Tendances Récentes de la Fécondité en Afrique Subsaharienne. Synthèse de l'Atelier*. The National Academies Press.
- United Nations. (1995). *Report on the international conference on population and development, Cairo, September 5–13, 1994*. United Nations, Department of Economic and Social Affairs, Population Division.
- USAID/Africa Bureau. (2012). *Three successful Sub-Saharan Africa family planning programs: Lessons for meeting the MDGs*. United States Agency for International Development. [http://pdf.usaid.gov/pdf\\_docs/pa00hqsv.pdf](http://pdf.usaid.gov/pdf_docs/pa00hqsv.pdf). Accessed 20 Dec 2020.
- World Economic Forum. (2014). *Prospects for reaping a demographic dividend in Rwanda*. World Economic Forum.
- World Health Organization. (2017). *Sexual health and its linkages to reproductive health: An operational approach*. World Health Organization.





# The United States and Canada: Demographic Realities and Policy Responses

# 9

Kaja Jurczynska and Jay Gribble

## Introduction

Two of the most prosperous countries in the world, the United States (U.S.) and Canada share many similarities and interests; in fact, they are frequently compared to one another. Decades of close relations between the two countries have been forged through high volumes of trade, the secure and efficient movement of people across the world's longest international border, law enforcement and security collaborations, and shared cultural traditions. Immigration has also been a key part of each country's national heritage and, for a time, the U.S. and Canadian demographic profiles looked very similar, characterized by larger family sizes, younger age structures, and more ethnically diverse populations than Europe.

Despite these similarities and historic interconnectedness, the U.S. and Canada have also veered away from each other in key dimensions during the latter part of the twentieth century. From the 1970s, Canada began to converge demographically with Europe, while the U.S. stood as an outlier. The U.S. fertility rate proved resilient and persistently high, a somewhat anomalous reality in

the absence of a family-friendly policy environment, while Canadian childbearing steadily declined. While Canada's population lived longer, Canadians were also comparatively older. Despite both countries having strong immigrant traditions, population growth was dominated by excess births in the U.S. (natural increase), and increasingly by large flows of foreign workers in Canada.

In the first decade of the twenty-first century, however, the U.S. began to experience faster and more consistent fertility decline, and as a result, the notion of American demographic exceptionalism has waned. In 2020, both the U.S. and Canada reached important demographic crossroads: low fertility as more individuals choose to delay or limit pregnancy, higher deaths as baby boomers reached the ages of higher mortality, and increased reliance on immigration as a source of growth – particularly in the supply of working-age adults. This was coupled with other social challenges that include caregiving to the aging baby-boomer generation, social security imbalances, and most recently, the COVID-19 pandemic, which has affected virtually every aspect of the social and economic fabric of all countries around the world. At this juncture, population policy responses have become especially critical, holding the potential to shape national demographics and resulting development realities in both the U.S. and Canada.

Although neither country has designed holistic population policies as many other countries did, the U.S. and Canada shaped population issues

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through their strong and often diverging stances in family policy, healthcare, and immigration. Canada, like many other high-income countries, supported programs that help individuals balance work and family life, including through providing childcare subsidies, government-funded parental leave, and other measures that may affect people's desire for children and their ability to realize those intentions. Such policies have historically been much less common and generous in the U.S., which has focused more on tax credits rather than direct benefits. Canada provides a publicly-funded, universal health system for medically necessary healthcare services. Health insurance in the U.S. is generally provided by the employer, except for the elderly and a portion of the low-income population, with large segments of the U.S. remaining outside the healthcare system. While new, more generous pro-family and health plans are being introduced in the U.S. as of 2021, the lack of certain bipartisan support in the future dampens their long-term potential and benefits.

Immigration represents the area where policy can most easily and quickly shape the demographic and development futures of both countries given its impact on population size, age composition, labor supply, and resources needed to support aging populations. For now, the immigration systems of both countries are fundamentally different. While specific movements of immigration policies are susceptible to ebbs and flows resulting from changes in Administrations, the U.S. and Canada have had very different contemporary immigration policies. Canada's immigration system, while strict and focused on economic immigration, embraces the importance of foreign-born inflows. On the other hand, the U.S. system has become increasingly politicized and insular, though some recent restrictions have been reversed in 2021.

This chapter discusses the current state and recent trends for both countries related to mortality, fertility, immigration, as well as an overview of policy responses in each domain. It focuses largely on immigration, the policy lever that offers the most immediate impact, given the limited long-term success of programs targeting

fertility reversal. Finally, the chapter considers potential demographic and development impacts of more and less 'enabling' policy directions for both countries.

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## Mortality Levels, Trends, and Policy Responses

### Levels and Trends

The mortality levels and trends of the U.S. and Canada are relatively similar, although Canada's life expectancy at birth is higher than that of the U.S. by about 3.4 years.<sup>1</sup> This difference, while seemingly small, has a sizeable impact on each country's life expectancy ranking on the global stage. While Canada is within the top 25 countries with the longest life expectancy in 2020, the U.S. lags far behind, beyond the 50th place (World Bank, 2020). Underlying the difference are two factors: (1) higher adult mortality in the U.S. compared to Canada, including deaths due to opioid overdose, liver disease (linked to alcohol abuse), and suicide; and (2) Canada's greater success in reducing deaths among infants, children, and young people. Supportive policies related to healthcare help prevent acute and chronic illness while providing treatment for illness causing premature death across the entire life course. The variations in causes of death between the two countries may be linked to their health insurance programs, with Canada providing universal access to healthcare and the U.S. providing health insurance most often through the formal labor sector. Both countries also have public old-age pension programs, which provide financial resources to ensure quality of life beyond working-age – a critical factor in achieving a healthy lifestyle and avoiding early death.

In the 1950s, the average individual born in the U.S. and Canada could expect to live approximately the same number of years (69), with women living longer than men in both countries.

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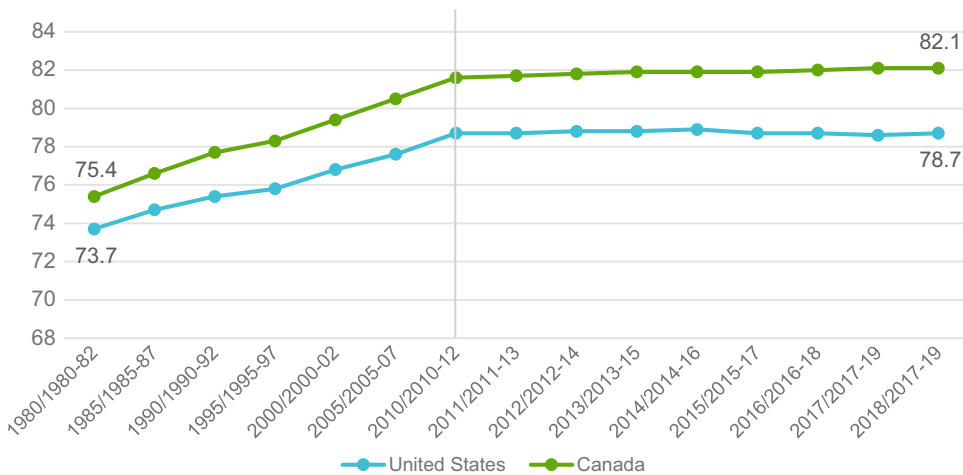
<sup>1</sup> Based on a comparison of life expectancy at birth in the U.S. for 2018 and Canada for the period 2017–2019, the latest available at the time of writing.

From that point, however, a gap began to grow in life expectancy – i.e., the average number of remaining years of life at birth or other ages – between these two countries, with Canada experiencing faster gains over time. By the 1970s, the average person in Canada could expect to live at least 1 year longer than their U.S. counterpart, increasing to 2 years by the 1990s and finally 3 years from 2010 onward (United Nations, 2019). While those in Canada live longer, and are generally healthier than U.S. counterparts, life expectancy gains in both countries have begun to slow – including for shared reason, like the opioid crisis and increases in deaths from Alzheimer’s and lung cancer.

During the 2017–2019 period, life expectancy at birth for both sexes in Canada reached 82.1 years – or 80 years for men and 84.2 years for women (Statistics Canada, 2020b). The gap between the sexes decreased from a high of 7.4 years in 1975–1977, attributed to a reduction in violent deaths among young men, improved treatment of cardiovascular disease, and convergence in men and women’s health behaviors (like smoking). Notably, 2019 marked the year in which life expectancy at birth for men reached 80 years, a threshold reached for women more than 30 years earlier (Statistics Canada, 2020d).

Canada’s rapid gains in life expectancy at birth are, like in most other high-income countries, attributable to the reduction of deaths among infants and young people. Subsequent increases in life expectancy since the 1950s have been due to reductions in deaths from circulatory diseases (Statistics Canada, 2015). By 2012, the gains in life expectancy began to slow in Canada, and 2017 marked the first year in nearly four decades in which there was no increase in life expectancy for either men or women. Improvements resumed by 2019, though COVID-19 has exerted a negative impact. Notably, Canada recorded over 309,000 deaths in 2020, the first time in the country’s history that deaths surpassed 300,000. Of those death, 14,965 – or 5% of all deaths – were attributed to COVID-19 (Statistics Canada, 2021a).

In the U.S., life expectancy at birth for the total population reached 78.7 years in 2018 – 76.2 years for males and 81.2 years for females; see Fig. 9.1 (Arias & Xu, 2020). There have been consistent disparities in life expectancy by race, although these have narrowed over time: between 1970 and 2017, life expectancy for the White population increased by 7.3 years compared to 11.2 years for the Black population. Nonetheless, according to the most recent estimates, disparities



**Fig. 9.1** Life Expectancy at Birth in the U.S. and Canada. (Sources: (1) U.S. Centers for Disease Control and Prevention (CDC)/National Center for Health Statistics (NCHS), 2020; (2) Arias & Xu, 2020; (3) Statistics Canada, 2020b)

remain significant. The greatest difference in life expectancy is 13 years – between Hispanic-origin females (84.3 years) and non-Hispanic Black men (71.3 years) (Arias & Xu, 2020). Like in Canada, gains in longevity slowed considerably during the 2010s in the U.S., with a registered decrease in life expectancy for both men and women between 2014 and 2018 (Xu et al., 2020). This decrease marked the first fall in life expectancy since the height of the AIDS epidemic in the 1990s. This alarming reversal in the richest country in the world – not observed since the 1918 flu – is the result of increased deaths due to opioid use, liver disease and cirrhosis, and suicide, a group of causes increasingly referred to as ‘deaths of despair’ (Woolf & Schoemaker, 2019; Case & Deaton, 2021).

While life expectancy in the U.S. experienced a small increase in 2018 and 2019 for both men and women (Xu et al., 2020), the COVID-19 pandemic will certainly exert a negative effect. From 2019 to 2020, the estimated age-adjusted death rate increased by 15.9%, from 715 to 829 deaths per 100,000 population, with COVID-19 listed as an underlying or contributing cause of 377,883 of the 3.3 million deaths during that year (11.3%). COVID-19 officially became the third leading underlying cause of death, following heart disease and cancer (Ahmad et al., 2021). Compared to Canada, the U.S. experienced relatively more excess mortality due to COVID-19.

While the U.S. and Canada share the leading causes of death – like heart disease, cancer, unintentional injuries, chronic lower respiratory diseases and others (Xu et al., 2020; Statistics Canada, 2019a) – mortality rates are typically higher in the U.S. Canada’s death rates from cancer and influenza/pneumonia exceed those of the U.S., while the U.S. leads in death rates from injuries, Alzheimer’s, suicide, and kidney disease (U.S. Centers for Disease Control, 2020; Statistics Canada, 2020c). Complementing the cause-specific death rates are the years of life lost due to premature death, for which the U.S. leads Canada substantially for ischemic heart disease and chronic obstructed pulmonary disease, stroke, as well as road injuries and Alzheimer’s (Institute for Health Metrics and Evaluation, 2020).

The U.S. disadvantage exists not only for longevity, but for health more broadly, across men and women of all ages. This is characterized by a higher prevalence of low birth weight, poor maternal health outcomes, overweight, obesity, and diabetes, heart disease, stroke, and lung disease in the U.S. Common explanations of these disadvantages have included differences in individual behaviors – particularly greater tobacco use, poorer diet, and less physical activity (National Research Council, 2011) – greater inequities among socio-demographic groups, and poorer quality of the healthcare system (Averdano & Kawachi, 2014). As is the case with life expectancy at birth, others have pointed to the lack of universal health coverage in the U.S. as the cause of poor health. Finally, weak upstream policies in the social determinants of health – early childhood education, employment protection laws, income support policies, tax systems, and redistribution policies – serve as long-term factors that underlie differences in overall health status between the two countries (Averdano & Kawachi, 2014).

While life expectancy at birth is predicted to continue increasing in both countries in the coming years – though more gradually – the death rate will *also* increase in the future, presenting an interesting demographic conundrum. The crude death rate in both the U.S. and Canada (deaths per 1000 population) is expected to increase from approximately 8.7 and 7.7, respectively, today to above ten through mid-century (United Nations, 2019) as baby-boomers reach the ages of higher mortality. In the absence of large immigrant flows or rebounding fertility levels to offset the increased death rates, both countries could experience declines in population size in the coming decades.

## Policy Responses

Unlike in the case of fertility – where the link between family policy and family size is less certain and subject to externalities like epidemiological shocks and economic downturns – there is a strong, positive relationship between social policy and improved life expectancy (Ranabhat

et al., 2018; Woolhandler, 2017). Specifically, there are two areas of social policy that are relevant for mortality. Healthcare, on the one hand, focuses on providing prevention and treatment that reduces the risk of death and extends life expectancy across the entire life course. Old-age pensions, on the other hand, can help extend the length of a person's life and add to its quality after retirement.

The U.S. and Canadian healthcare systems are fundamentally different. Since 1947, the Canadian healthcare system has been dedicated to enabling access to services regardless of one's ability to pay. Through the Canada Health Act of 1984, individuals have universal access to publicly funded healthcare services. Through provincial and territorial health insurance plans, which must adhere to the Act in order to receive federal funding, eligible individuals receive a package of medical and hospital services free at the point of care (Martin et al., 2018). Collectively known as Medicare, this system stands in stark opposition to the U.S. historically, in which private insurance has covered the cost of health services, while publicly financed care is provided for those over the age of 65 through Medicare and for the poor and vulnerable through Medicaid.

In recognition of the unaffordability of health services, President Barack Obama signed into law the Patient Protection and Affordable Care Act (or ACA) in 2010, also known as Obamacare. A landmark reform to the U.S. healthcare system, the ACA provides consumers with subsidies to lower the costs of private health insurance; the ultimate goal of the ACA is that all people have some form of health insurance. The ACA represented significant changes in how insurance is handled in the U.S. by creating state-level marketplaces in which consumers could compare insurance plans before purchasing them. It also provided subsidies to low-income individuals and households for purchasing insurance and expanded eligibility for Medicaid. The ACA prohibited discrimination on the basis of pre-existing conditions, identified ten essential health services, and allowed young people up to age 26 to remain on their parent's insurance, benefiting two to three million young people.

The ACA has faced many challenges in the U.S. Congress and through the court system. While the Trump Administration failed to repeal Obamacare, they undertook a long list of efforts to undermine the ACA, including having successfully rescinded the federal tax penalty for violating the Individual Mandate, cutting subsidies to insurance companies offering coverage on the exchanges, reducing funding for advertising the exchange, and shortening the enrollment period (Thompson, 2020). A 2020 Supreme Court decision sided with the Trump Administration and ruled that employers with religious objections can decline to provide contraception coverage under the ACA. Alongside these challenges, the number of individuals who selected a marketplace plan dipped from 12.6 million in 2016 to a low of 11.4 million in 2020 (Kaiser Family Foundation, 2021).

The Biden Administration has sought to reverse many of these constraints in its first year (2021), having campaigned on strengthening Obamacare. Notably, the USD 1.9 trillion American Rescue Plan – the COVID-19 relief bill/stimulus package that was signed into law in March 2021 – included provisions for the ACA, such as substantially reducing premium costs through subsidies for enrollees. In his first year, Biden likewise announced the USD 1.8 trillion American Families Plan, a legislative package that proposes universal pre-school and 2 years of free community college, affordable childcare, extensions to child tax credits, the extension of free and reduced-price meals for children, and national comprehensive paid family and medical leave (The White House, 2021a); these aspects are further discussed in the section Fertility Levels, Trends, and Policy Responses.

A second policy measure that is relevant for mortality is the structure of national retirement systems. Both the U.S. and Canada have government-sponsored mandatory old-age pension systems. However, the amount that is paid in and paid out of the systems is very different. The U.S. Old-Age, Survivors, and Disability Insurance (OASDI) program is funded primarily through the social security payroll tax that is matched by the employer. Canada's program is made up of two

parts: the Canada Pension Plan (CPP), funded by payroll taxes, and Old Age Security (OAS), which is funded out of general tax revenues and supplements the CPP. Pension contributions and benefits in Canada tend to be lower than in the U.S. and can become available at a younger age. CPP funds are managed by a Board that invest in stocks, bonds, and other assets, with the goal of maximizing returns; social security funds are invested only in U.S. Treasury securities.

Population age structure holds implications for retirement systems; older populations and shrinking labor forces negatively impact their solvency. The chief actuary of Canada reported that contributions to the CPP base and the additional Plans (an enhancement as of 2019) are projected to be higher than expenditures through 2021 and 2057, respectively. A portion of investment income will be required to pay for CPP base expenditures from 2022 (Government of Canada, Office of the Superintendent of Financial Institutions, 2018). The Canadian OAS program, funded with tax revenue, does not face a solvency issue. On the other hand, the reserves of the U.S. OASDI program are estimated to be depleted in 2034. After this point, beneficiaries will receive approximately three-fourths of their scheduled benefits through 2095, paid for through the annual revenue of the social security tax (The OASDI Board of Trustees, 2021). In the meantime, decision-makers have until 2035 to develop a financing plan for the pension program. The size of the labor force contributing to these pension programs influences the amount of funding moving into the systems; therefore, policies affecting both fertility and migration can play critical roles in addressing the short- and long-term size of the labor force and the solvency of these public pension programs.

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## Fertility Levels, Trends, and Policy Responses

### Levels and Trends

The U.S. and Canada have progressed along the demographic transition, moving from high to low death and fertility societies. Though the

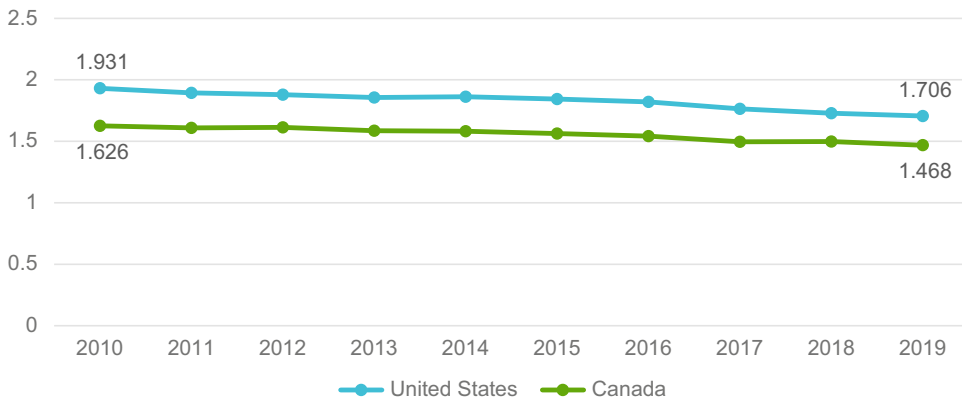
U.S. appeared demographically exceptional in years past (Eberstadt, 2007), the tide is turning as fertility rates decrease to historic lows. Since the late 1960s and early 1970s, both countries experienced a drop in the total fertility rate to below 2.1 children per woman, the typical level required to replace the population in the absence of migration. Over the intervening 50 years, fertility levels in the U.S. have fluctuated considerably, rising to near-replacement levels between 1990 and 2007, and beginning their trajectory of steady decline during the height of the global economic recession. On the other hand, childbearing in Canada has shown a more consistent decline over time, with comparatively little fluctuation (United Nations, 2019).

In 2019, U.S. childbearing dropped to its lowest levels in recorded history, with a fertility rate of 1.71 children per woman on average, a significant decrease from 2.06 children per woman in 2000. This drop occurred among nearly all race groups (both native and foreign-born), apart from Native Hawaiian or Other Pacific Islander who have the highest fertility rates but who represent less than 1% of the U.S. population (Martin et al., 2021). Canada has likewise experienced significant declines in childbearing, reaching lower levels than in the U.S.; see Fig. 9.2. While the total fertility rate in Canada increased slightly between 2002 and 2008 (from 1.51 to 1.68), it subsequently declined to 1.47 in 2019 (Statistics Canada, 2020a). Studies of fertility behavior and provisional birth estimates during the COVID pandemic in both the U.S. and Canada are pointing to significant further decreases in childbearing in response to the public health crisis (Barroso, 2021).

In most high-income countries, family sizes among immigrants (or foreign-born mothers) tend to be higher than their native-born counterparts. While this remains true in the U.S., the birth rate among foreign-born women is declining at a faster rate than the native-born population.<sup>2</sup> Between 2010 and 2019, the general

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<sup>2</sup> The U.S. Census Bureau defines the native-born as anyone who is a U.S. citizen at birth. Foreign-born individuals are not U.S. citizens at birth, and include naturalized U.S. citizens, legal permanent residents, temporary migrants and others.



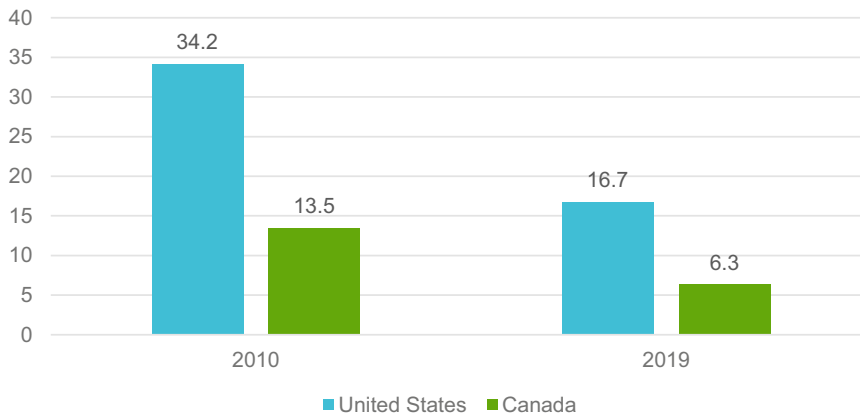
**Fig. 9.2** The Total Fertility Rate in the U.S. and Canada. (Sources: (1) Martin et al., 2021; (2) Statistics Canada, 2020a)

fertility rate among foreign-born mothers decreased by 19% (from 70 to 57 births per 1000 women), compared to 6% among native-born women (from 52 to 49 births per 1000 women) (U.S. Census Bureau, 2020). The rapid decrease among immigrants indicates a faster fertility transition than among native-born and a convergence of both groups to a common – and even lower – fertility level. Research comparing the fertility of foreign-born women within 5 years of arriving to Canada to native-born women finds lower fertility among immigrants, with variation based on the region of origin of foreign-born. This reality, which contrasts to the U.S. experience, may be linked to the Canadian immigration process that prioritizes skills and education (Adserà & Ferrer, 2018).

One of the main drivers of decreased fertility in the U.S. has been the sharp fall in adolescent childbearing. High adolescent fertility was long thought to be one of the factors accounting for the country's larger family size and demographic uniqueness. In 2019, the birth rate for females ages 15–19 was 16.7 births per 1000 women in that age group, a record low since its most recent high of 41.5 births in 2007. While adolescent childbearing has decreased across major ethnic and racial groups, disparities continue to exist, with childbearing at least twice as high among Hispanic, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and Black young women than among White adolescents (Martin

et al., 2021). Canada's adolescent birth rate has also sharply declined, though not nearly as dramatically as it started at a much lower level; see Fig. 9.3. Over a period of 9 years, adolescent childbearing decreased by more than half in both countries. Nonetheless, the adolescent birth rate in 2019 is twice as high in the U.S. as in Canada.

Beyond decreased childbearing at the youngest ages, the postponement of births is likewise shaping fertility levels. In both the U.S. and Canada, increasing numbers of women are waiting longer to have children than in the past. However, women in the U.S. still start families sooner than in most high-income countries. The mean age at first birth in the U.S. increased from 24.2 years in 1990 to 27 years in 2019. Underlying this average are dramatic shifts in age-specific birth rates. Between 1990 and 2018, age-specific fertility rates for U.S. women aged 15–34 declined substantially. Over the same time period, births to women ages 35–44 increased, especially so among women in their 40s, for whom rates rose from 5.6 to 12 births per 1000 women between 1990 and 2019 (Martin et al., 2021; Matthew & Hamilton, 2009). Canada has similarly experienced greater postponement of motherhood, with the age-specific fertility rate among women ages 40–44 increasing from 5.9 to 12.3 births per 1000 women between 2000 and 2019. Between 1959 and 2019, the average age of first-time mothers increased from 23.2 to 29.4 years (Statistics Canada, 2020a).



**Fig. 9.3** The Adolescent Birth Rate in the U.S. and Canada per 1000 women 15–19. (Source: (1) Martin et al., 2021; (2) Statistics Canada, 2020a)

While delayed childbearing is likely to influence total lifetime fertility – by, for instance, shortening the window during which women can conceive, referred to as fertility compression – the family size-inhibiting effects of postponement may be over-emphasized because of how fertility is calculated (Timaueus & Moultrie, 2008). Regardless of the exact impact on total fertility, postponement is happening in both countries and the dynamics of childbearing are changing rapidly. This phenomenon should be at the forefront of public policy because there are some indications that this is not an outcome of total free choice, but rather a response to adverse economic conditions that leave many thinking that they are unable to afford children.

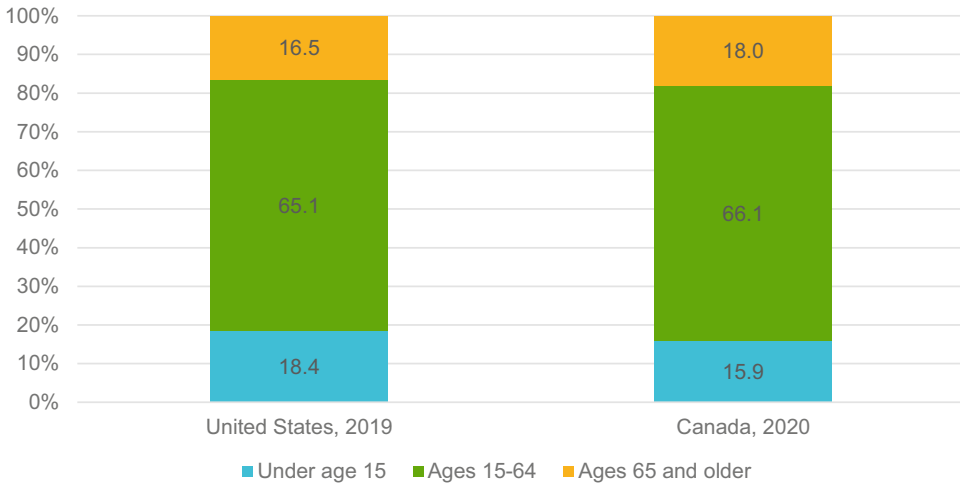
A recent study on childbearing in the U.S. found that many younger women feel greater agency over their own lives and that motherhood is now a choice for them. At the same time, many young people feel economically insecure due to the costs of childcare, housing, and student debt and are opting either to have fewer children than they wanted or having no children at all (Miller, 2018). Decreased childbearing in Canada is attributed to similar issues, with the high cost of housing, slow wage growth, and increased sense of job insecurity. The movement toward a ‘gig’ economy, coupled with motherhood no longer the personal priority that it was in the past, is leading many young women and couples to opt for

fewer – or even no – children (Russell, 2017). These uncertainties may lead some women to either forgo parenthood if desired or put their careers on hold during part of motherhood, often creating difficulties for reentering the labor market.

One of the challenges facing the U.S. and Canada linked to low fertility is increased population aging. During the middle of the twentieth century, the U.S. and Canada had similar age profiles, with more than a quarter of each country’s population under age 15. This age structure was the result of the large cohorts born during the post-World War II baby-boom. As fertility rates declined, the baby-boom generation and subsequent generations had lower fertility, meaning that each successive birth cohort became smaller in size. Consequently, the U.S. and Canadian populations increased from median ages of 29 and 27.5 years in 1975 to an estimated 38 and 41 years in 2020, respectively (United Nations, 2019).

As this transition has taken place, both countries have reached record proportions of population over age 65. As seen in Fig. 9.4, the proportion over age 65 is slightly lower in the U.S. than in Canada, putting it among the youngest of its high-income counterparts, owing to its comparatively higher fertility rates over the last half century. For both countries, 2030 will mark the year in which all baby-boomers will be over





**Fig. 9.4** Age Composition in the U.S. and Canada. (Source: (1) U.S. Census Bureau, 2020; (2) Statistics Canada, 2021c)

the age of 65, raising concerns about the socio-economic implications and presenting challenges for government-funded entitlements like healthcare and pensions.

### Policy Responses

While fertility declines like those observed in the U.S. and Canada in recent decades are hard to reverse, there are some policy tools available that can work to mitigate against challenging demographic and socioeconomic futures in both countries. This is especially pertinent given the *at minimum* temporary shock to fertility rates resulting from the COVID-19 pandemic. Specifically, these are family policies that create more hospitable conditions for childbearing, including enabling a work-life balance that does not overburden people in either role. The second policy response, immigration policy, will be discussed later in this chapter.

The U.S. and Canada have both implemented programs that have the potential to affect people’s desire for children as well as their ability to realize those intentions. However, impacting fertility has rarely been the explicit objective of these policy measures. In most cases, the explicit purpose of family policies has been to get people back into the labor force, such as following pregnancy and

childbirth. These policies typically fall into three categories, namely those that: (1) strengthen relationships (e.g., marriage laws and adoption laws); (2) support families to care for dependent members through incentives (e.g., tax credits, subsidized childcare, cash benefits); and (3) enable parents to participate in the labor force (e.g., parental leave, distance work schemes, and flexible working hours) (May, 2012).

Historically, there have been fundamental differences in the level and type of government support offered to families in the U.S. and Canada. While in Canada children and families are a key focus of public and social policy deliberations, the U.S. is characterized by scarcity of benefits for parents and families. Importantly, neither country spends as much of its gross domestic product on supporting families in ways that matter for fertility as do the handful of countries that have successfully sustained higher or reversed falling birth rates. As of writing this chapter, neither the U.S. nor Canada provides affordable, high-quality childcare immediately after parental leave, which – from the experience of Nordic countries, Belgium, and France – has been shown to have the most substantial effect on fertility (Sobotka et al., 2020).

By comparison, parental leave has been shown to exert a positive, albeit smaller effect on fertility

if it is well paid and nurtures more gender equal division of childcare (Sobotka et al., 2020). Through the end of the Trump Administration, the U.S. remained one of a handful of countries globally to guarantee no federal government paid leave for parents. The U.S. makes unpaid leave available to individuals through the Family and Medical Leave Act (FMLA) of 1993. While this policy allows employees up to 12 weeks of unpaid leave annually for reasons such as birth or care of a newborn, eligibility restrictions mean that many are disqualified. In response, some states have supplemented the federal FMLA regulation by reducing eligibility requirements or passing laws on paid parental leave (California, New Jersey, New York, and Rhode Island).

Parental leave dynamics have begun to shift in the U.S. in the COVID-19 period. This began with the passage of the Emergency Family and Medical Leave Expansion Act in 2020, which temporarily provided employees with paid sick leave or expanded family and medical leave for specified reasons related to COVID-19. In 2021, the Biden Administration introduced a new family and medical leave program through its American Families Plan that would make parents eligible for 12 weeks of paid leave, if approved. This plan likewise proposes to make childcare more affordable for low- and middle-income households, capping the share of household income that can be spent on childcare to no more than 7% (The White House, 2021a).

By contrast, in Canada – like in other OECD countries – parents receive leave paid through the Employment Insurance (EI) Plan. Through these benefits, new mothers are entitled to up to 15 weeks of compensation at approximately half of their earnings to a set maximum. Mothers and fathers are entitled to another tranche of parental leave – through either a standard (40 weeks) or extended (69 weeks) package – for situations like adoption placement as well as the birth of a newborn. Mothers can combine maternity and parental leave. Like in the U.S., however, childcare costs remain primarily incurred by parents, though some provinces/territories indirectly reduce parent fees for low-income households by subsidizing operating costs of regulated

childcare. In recognition of the unaffordability of childcare, Prime Minister Trudeau introduced a childcare goal of CAD 10 per day in its Budget 2021. With a target date of 2026, this goal is being operationalized through a new Canada-wide, community-based early learning and childcare system (Government of Canada, 2021a).

Moreover, while not intended to motivate higher fertility, both the U.S. and Canada provide either tax credits or benefit payments to families. The U.S. has allowed families to take an income tax credit for child and dependent care expenses since 1976. This credit allows qualified tax-paying parents to reduce tax payments by 20% and 35% of childcare costs for a child under age thirteen or any dependent physically or mentally incapable of self-care. The Biden Administration significantly increased the child tax credit through the American Rescue Plan – for example, boosting credits from USD 2000 to 3000 per child 6 years old and above – and has proposed further extending this increase through 2025 in its American Families Plan (The White House, 2021a).

Canada offers families a child benefit, or tax-free monthly payment made to the eligible families to offset the costs of raising children under 18 years of age. Payments are based on adjusted family net income, as well as the number of children, their ages, and marital status. Families with the lowest adjusted net income receive close to CAD 6000 annually per child ages 6–17 years. Like in the U.S., Canada likewise boosted payments in the wake of COVID-19, providing up to four additional tax-free payments in 2021 to families with children under age six (Government of Canada, 2021b).

Overall, Canada's more family-friendly policy environment has not exerted a positive impact on fertility levels compared to the U.S., with one temporary and geographically confined exception. Quebec's costly Allowance for Newborn Children 1988–1997 scheme offered a one-time CAD payment for parents, varying by birth order (e.g., highest payments for third and higher order births). By one estimate, the program boosted period fertility rates by 12% overall (Milligan,

2005). The absence of long-term success in Canada overall is not unsurprising given that fertility is notoriously difficult to raise (and sustain) once it has declined to near- or below-replacement levels (May, 2012). Moreover, compared to European countries that have experienced greater fertility sustaining effects, like France and Norway, Canada's spending on families is among the lowest across the OECD countries (Sobotka et al., 2020).

Family policies also struggle to reverse the influence of important social and cultural factors present in today's world. The transformation in the social roles of women – such as through increased education and participation in the formal labor sector – have modified family structures including the demand for children. Furthermore, the widespread availability of modern contraception and legalization of abortion in many settings has allowed women to exercise greater control over their fertility. Finally, the timing of child-bearing and size of families is also highly susceptible to delays and declines following economic shocks and recession (Sobotka et al., 2011). These factors all work together to reduce the demand for children, and to date, reversing those trends to a large magnitude through family policies has not been very successful or long-lasting (Thevenon & Gauthier, 2010).

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## Immigration Levels, Trends, and Policy Responses

### Levels and Trends

While the U.S. and Canada have welcomed immigrants<sup>3</sup> for hundreds of years, immigration levels, features, and trends have evolved considerably over time. These realities have been heavily shaped by each country's respective policies, as well as their underlying immigration systems – which we describe in more detail in the subsequent section. As a result of varying structures and stances, the U.S. and Canada

were on two different immigration trajectories in the lead up to the COVID-19 pandemic. On the one hand, Canada was experiencing a high rate of immigration, while the U.S. – increasingly immigration averse under the Trump Administration – observed a slowing or flattened rate of increase. Likewise, the scale of legal and unauthorized immigrants evolved in response to harsher policy measures holding implications for both borders. Like in other countries globally, the COVID-19 pandemic radically hampered the inflow of immigrants from abroad.

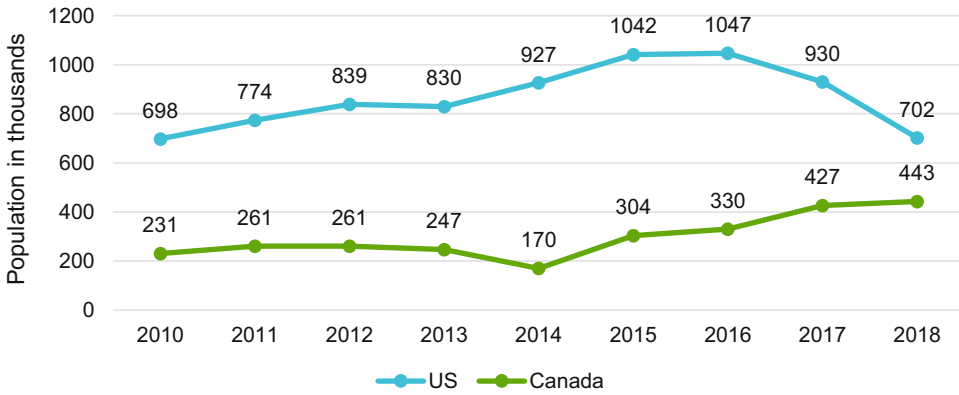
With some variations by country, foreign-born or immigrant populations can be classified into four broad categories: naturalized citizens, permanent residents, non-permanent residents (e.g., visa holders), and persons residing without authorization. In total size, the U.S. has the largest population of immigrants of any country in the world. In 2019, nearly 45 million of its 328 million residents – or 14% – were foreign-born (U.S. Census Bureau, 2020). As a share of the total population, however, Canada has one of the largest foreign-born populations globally. At the time of the 2016 census, more than one in five individuals (21.9% of the total population) reported being foreign-born (Statistics Canada, 2017a). While slightly less than the recorded peak of 22.3% during the 1921 census, Canada's immigrant population has steadily risen since the 1990s (Statistics Canada, 2017a). By contrast, the share of the foreign-born population in the U.S. has not exceeded 15% in recorded history, a comparatively modest share among high-income countries.

Recent data on immigrant flows for the U.S. and Canada point to differing trends. In the U.S., net international migration – in-migration minus out-migration – has gradually declined each year since 2015/2016; see Fig. 9.5. This decline reflects decreased immigration and increased foreign-born emigration, particularly among Mexicans. By contrast, net international migration has consistently increased in Canada since 2015, reaching in 2018 the highest level ever recorded (Statistics Canada, 2021d).

These diverging trends are reinforced when examining new immigrant flows. In the U.S.,

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<sup>3</sup> Also referred to as foreign-born, defined as those who did not have U.S. or Canadian citizenship at birth.



**Fig. 9.5** Trends in Net International Migration. (Sources: (1) U.S. Census Bureau, 2021; (2) Statistics Canada, 2021d. Note: International net migration for Canada is computed according to the Statistics Canada standard of adding immigrants, returning emigrants, and net non-permanent residents, then subtracting emigrants and net temporary emigration)

**Table 9.1** New permanent and non-permanent admissions by country

		2010	2017	2018	2019
U.S.	Non-permanent admissions	159,700,000	181,100,000	186,200,000	186,200,000
	Persons granted lawful permanent status	1,042,625	1,127,167	1,096,611	1,031,765
Canada	Non-permanent admissions <sup>a</sup>	270,366	971,739	996,109	N/A
	Persons granted lawful permanent status	N/A	286,510	321,055	341,175

Sources: (1) U.S. Office of Immigration Statistics (2020a); (2) U.S. Office of Immigration Statistics (2020b); (3) Statistics Canada (2021e); (4) Statistics Canada (2021f)

<sup>a</sup>In the absence of available annual data, we have presented quarterly estimates. These correspond to Quarter 4 of each year (as of October 1)

non-immigrant admissions plateaued between 2017 and 2019, while the number of people obtaining lawful permanent residence has decreased since 2017, falling below 2010 figures (see Table 9.1). In Canada, by contrast, the admission of non-permanent residents has increased substantially since 2010, with year-on-year increases in the number of persons granted lawful permanent status. Notably, 2019 represent the second consecutive year since 1912 when the country welcomed more than 300,000 immigrants (persons granted lawful permanent status). Canada’s immigration flows have exceeded its own targets embedded in its 2019–2021 Immigration Levels Plans. However, preliminary data for 2020 and the first quarter of 2021 indicate a severe drop in immigration levels for both countries, in large part due to the COVID-19 pandemic. In Canada, for example, the net

number of non-permanent residents hit a record low of –86,535 in 2020 – the largest net loss in recorded history – compared to a net gain of 190,952 in 2019 (Statistics Canada, 2021b).

Prior to the onset of the COVID-19 pandemic, Canada experienced sustained population growth,<sup>4</sup> while the growth of the U.S. population slowed considerably. For example, between 2018 and 2019, Canada’s population increased by more than half a million people, the largest absolute annual increase in the number of people living in the country ever observed, and the highest annual population growth rate (1.4%) since 1989–1990. Immigration accounted for most (four-fifths) of this sustained growth, having

<sup>4</sup> Population growth is the sum of natural increase (births – deaths) and migratory increase (immigration – emigration).

overtaken natural increase in the mid-1990s (Statistics Canada, 2019b).

By contrast, growth of the U.S. population has slowed every year since 2015. The 2020 U.S. census registered one of the lowest decadal population growth rates (7.4%) since the first census in 1790. While the excess of births over deaths continues to drive population growth compared to immigration in the U.S., the rate of natural increase has declined steadily since 2008. In 2019, the natural increase in the U.S. dropped below one million for the first time in decades (U.S. Census Bureau, 2019). The population growth rates of both countries have been affected by the COVID-19 pandemic, predominantly attributed to infection-induced travel restrictions. Between 2020 and 2021, for example, Canada's population grew to over 38 million, an increase of approximately 150,000 people – just one-quarter of the growth observed in 2019, the lowest annual growth since 1945. The population increase through international migration was over 80% lower in 2020 than in 2019 (Statistics Canada, 2021b).

One of the most vivid manifestations of change in recent decades in both the U.S. and Canada has been an evolution in the origin country of immigrants. Of the entire 2019 U.S. foreign-born population, half (50.3%) were born in Latin America while an additional third (31.4%) originate from Asia. In 2017, the top country of origin for new immigrants coming into the U.S. was India, followed by Mexico, China, and Cuba. However, by all accounts, more Mexicans are leaving than entering the U.S. Immigration from Mexico has been on steady decline since 2008 Recession, including due to improved economic conditions in Mexico (U.S. Census Bureau, 2019).

In Canada, a country once dominated by migration from the United Kingdom and Europe, the largest flows now originate from countries in South and East Asia. While almost half (48.1%) of the 2016 total foreign-born population originated from Asia followed by Europe (27.7%), the country has likewise seen the share of immigrants from Africa increase four-fold from 3.2% to 13.4% – a result of changes to

Canada's immigration policies and increased refugee flows. The increase in the number of immigrants from non-European countries has contributed to the growth of racial diversity – referred to as Canada's visible minority.<sup>5</sup> The visible minority population in Canada is rapidly growing, representing 22.3% of the total population in 2016 compared to 13.4% in 2001 (Statistics Canada, 2017b).

The profile of immigrants in the U.S. and Canada varies compared to the native-born populations, in part driven by divergent immigration systems. In the U.S., immigrants from Mexico and Central America have traditionally had lower levels of education than the U.S.-born population, while immigrants from Asia, Europe/Canada, the Middle East, and sub-Saharan Africa have been more likely than the native-born to have a bachelor's or advanced degree (Budiman, 2020). As migration flows have shifted, newer immigrants from Mexico are now more likely to be college-graduates and have stronger English skills than those who arrived in prior decades (Zong & Batalova, 2018).

In Canada, immigrants tend to be more educated than their native-born counterparts. This reflects the country's points-based immigration system geared toward attracting highly skilled labor migrants; the majority of those who come to the country do so through work-related permits (referred to as economic class streams) (Challinor, 2011). Due to its large share of highly educated foreign-born immigrants, Canada boasts good labor market outcomes, high incomes, good access to training, and social inclusion for its immigrants compared to the native-born population. The differences in the two countries' immigration systems may also underlie differences in naturalization of foreign-born populations: only half of the foreign-born population in the U.S. is naturalized compared to 75% in Canada

<sup>5</sup> A term used by the Government of Canada to describe those people who belong to a minority group as defined by the Employment Equity Act, or “*persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour*”, consisting of White, South Asian, Chinese, Black, Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean and Japanese, and other.

(U.S. Census Bureau, 2020; Statistics Canada, 2017a).

The U.S. has larger shares of unauthorized immigrants – i.e., those who are unlawfully present in a country, whether because they entered illegally or overstayed a visa – than nearly all other countries. Nonetheless, unauthorized immigration is at the lowest levels in more than a decade, with an estimated 10.5 million unauthorized immigrants in 2017 compared to a peak of 12.2 million in 2007. Illegal immigration originating from Mexico has steadily declined as more individuals left than entered the U.S. Now, those from Asia and Central America – particularly the Northern Triangle nations of El Salvador, Guatemala, and Honduras – make up a growing share (Passel & Cohn, 2019).

By contrast, unauthorized immigration has been very limited in Canada historically, attributed to natural buffers against uncontrolled immigration – Atlantic, Pacific, and Arctic oceans. Historically, Canada has experienced limited unauthorized immigration along its southern border with the U.S., given that immigrating to U.S. was the larger draw (Keller, 2018). Since 2017, however, Canada has seen an influx of individuals crossing the Canada-U.S. border between ports of entry (irregular border crossers), like in Roxham Road, which is a rural street in upstate New York on the Canadian border, where the vast majority of those crossing have made refugee/asylee claims. This shift is a direct response to changing U.S. immigration policy, including that towards refugees and asylees.<sup>6</sup>

## Policy Responses

### U.S. and Canadian Immigration Systems

Since the 1990s, the U.S. and Canada have shared a set of common principles which have governed their immigration systems, specifically: family

reunification, employment-based migration, and humanitarian protection. However, the U.S. and Canada assign different weights to these principles and diverge in the ways by which entry is granted. They likewise vary in the rules that govern how and when one person arriving transitions from one status or categorization to another (e.g., non-permanent resident to permanent resident). While the U.S. has historically placed more emphasis on family reunification, the Canadian system has maintained a dominant focus since the late 1980s on selecting immigrants based on their skills and ability to contribute to the economy (Challinor, 2011). These dynamics and divergent systems have fundamentally shaped the size and composition of the foreign-born population of each country.

The U.S. Immigration and Nationality Act (INA) of 1952 and its subsequent amendments have allowed the country to issue both immigrant and non-immigrant visas. Immigrant visas are intended for those seeking to live permanently in the U.S. – thereby gaining lawful permanent resident status, also referred to as a Green Card. Categories for immigrant visas include immediate relatives and family sponsored, employment, special immigrant, and the Diversity lottery. The U.S. gives preferences to sub-groups, such as persons with extraordinary ability; it also assigns per-country ceilings. The second category of visas is non-immigrants, who are individuals admitted on a temporary basis, such as tourists, foreign students, and temporary workers. Historically, the U.S. has supported humanitarian programs and accepted refugees, asylum seekers, and granted Temporary Protected and other statuses. Refugees and asylees have been eligible to apply for a Green Card after 1 year. Through the INA, some immigrant categories are subject to annual caps – like family-sponsored, employment-based, refugees and asylees – while others, like immediate relatives of naturalized citizens and permanent lawful residents, are not.

Like the U.S., Canada also offers permanent residence and temporary visas to foreign citizens. Those hoping to settle under Canada's permanent resident allowance may do so in two broad categories: economic classes and non-economic

<sup>6</sup> Refugees are those unable to return to home countries because of a well-founded fear of persecution, who apply for admission from outside a port of entry. Asylees, by contrast, submit applications while physically present in or at a port of entry.

classes. The former includes skilled workers, entrepreneurs and self-employed persons, caregivers, and many others, while the latter includes family sponsorship, adoptions, and humanitarian claimants. Under Express Entry, the largest of the economic class programs, immigrants are chosen based on a point system that favors language ability, education, skills, and experience. Humanitarian claimants, who represent the smallest group of immigrants admitted, are resettled often with the help of sponsors (Government of Canada, 2018). Visitor or Temporary Resident visas are available for eligible applicants traveling for tourism, studies, family visits, and short-term business, among others.

### **Historical/Early Immigration Policy in the U.S. and Canada**

In both the U.S. and Canada, immigration policy has evolved considerably over time, with periods of less and more restrictive practices. This evolution has been shaped by the shifting social, political, and economic climate, as well as beliefs about race and integration. In both countries, overt discrimination remained a part of immigration policy until the second half of the twentieth century, at which point U.S. immigration policies shifted to family reunification (especially for spouses) and employment needs, while Canadian policies turned to a point-based system that focused on attracting skilled workers who could assimilate more easily into the culture.

U.S. immigration policy began with the 1790 Naturalization Act, which defined highly restrictive eligibility criteria for naturalization. Nearly 100 years later, the Immigration Act of 1864 began encouraging economic immigration to help offset the labor shortages resulting from Civil War (Pew Research Center, 2015). From the late 1800s, the U.S. introduced bans on Chinese laborers and immigration from most Asian countries. Discriminatory numerical quotas for immigration came into effect through the 1924 Immigration Act, or National Origins Act, favoring migration from North-Western and Western Europe versus Eastern and Southern Europe. The U.S. began to shift towards more inclusive policies during World War II, beginning with

the 1942 Bracero Agreement, which encouraged Mexican nationals to enter the U.S. as temporary agricultural workers in response to war labor shortages (Pew Research Center, 2015).

Revisions to the discriminatory National Origins Act came through the Immigration and Nationality Acts of 1952 and 1965, when Congress effectively replaced the system with one designed to unite immigrant families and attract skilled workers. These Acts also opened U.S. borders to immigration from new regions like Africa, Latin America, Asia, effectively shifting the source countries away from Europe (Pew Research Center, 2015; Haub, 2006). Humanitarian programs and resettlement became formally embraced through the Refugee Act of 1980. Subsequently, to stymie growing unauthorized flows, the 1986 Immigration Reform and Control Act created new seasonal work visas, imposed sanctions on employers who knowingly hired unauthorized workers, while granting amnesty to three million undocumented immigrants already in the U.S. Through the Immigration Act of 1990, the U.S. subsequently modified the 1965 Act by increasing available visas and annual immigration caps, revising preference categories, and cementing the immigration principles of family reunification, employment-based migration, and increased diversity (Pew Research Center, 2015).

In Canada, in order to populate the West, the government permitted largely free entry between 1869 – the year of Canada’s first immigration policy following Confederation – and 1885. This openness for settling rural frontier areas gradually gave way to more restrictive measures, first toward Chinese immigrants in 1885. Through subsequent policies in 1906 and 1908, the Immigration Acts of 1910 and 1919, and Order in Council of 1911, Canada largely excluded from immigrating those not of white American, British, and European origin. These measures also gave the government greater discretionary authority concerning the admissibility and deportation of immigrants (Challinor, 2011). With the passage of Order in Council in 1931, Canada implemented its tightest immigration admissions policy in history in response to the Great Depression, whereby admissible

immigrants were limited to American and British subjects with enough capital and means to farm and maintain themselves (Whitaker, 1991).

Beginning in 1962, Canada introduced changes that overturned the most discriminatory dimensions of its immigration policy, with skill becoming the main criteria for admission (rather than race or national origin). Through a 1967 Order in Council, the points system was introduced, which assessed immigrant eligibility based on education, occupational skills, employment prospects, language proficiency, and personal character. Most notably, through the Immigration Act of 1976, Canada formally outlined the objectives of its modern-day immigration policy, codifying the economic, family, and refugee immigration classes. Canada cemented its commitment toward a diverse racial and ethnic composition in 1988, becoming the first country to pass a national multiculturalism law (Challinor, 2011).

### **Contemporary Immigration Policies in the U.S. and Canada**

Contemporary immigration policy in the U.S. has been heavily shaped by the September 11, 2001 terrorist attacks. The attacks reframed immigration, which became increasingly politicized and seen as a potential threat to national security. In the immediate aftermath of the attacks, core immigration functions were transferred in 2002 to the newly established Department of Homeland Security, enforced by its three agencies, the U.S. Customs and Border Protection, U.S. Immigration and Customs Enforcement, and U.S. Citizenship and Immigration Services. Between 2001 and 2020, the U.S. adopted increasingly restrictive and unprecedented measures largely through executive action, in the absence of congressional support. These efforts have focused on three groups of migrants: unauthorized immigrants, refugees and asylum seekers, as well as non-immigrant visa Green Card holders. While Canada also tightened its border security in the aftermath of the terrorist attacks, immigration policy has remained considerably more open, with ambitious immigration targets and the recognition of a clear economic

imperative for continued flows. These events have put the two countries on divergent paths.

**Unauthorized Immigrants** While the militarization of the U.S. border began under the Clinton Administration's Operation Gatekeeper (1994–1997), successive Administrations have invested heavily in border security, particularly along the U.S.-Mexico border. Under the Bush Administration, border security funding increased from USD 4.6 billion in 2001 to USD 10.4 billion in 2007 (The White House George Bush Archives, 2007). The Secure Border Initiative (2005) saw the expansion of detention capacity and the introduction of fencing, cameras, and radar along the U.S. border with Mexico. The Bush Administration also focused on interior immigration enforcement, with 2003 marking the beginning of a surge in the number of unauthorized immigrants who were deported.<sup>7</sup> These types of immigration enforcement procedures continued under the Obama Administration, which sought to build trust with immigration restrictionists in hopes of passing comprehensive immigration reform during his Administration (Al Sharafat, 2019).

After failed attempts to pass comprehensive immigration legislation, Obama used executive action to implement a reform that benefited unauthorized immigrants. The Deferred Action for Childhood Arrivals (DACA) was designed to protect young unauthorized immigrants – or 'dreamers' – who were brought into the U.S. as children from deportation, for a renewable period of 2 years. It did not provide a pathway to citizenship, but gave recipients the legal authority to work, and showed a positive effect on income-earning, educational attainment, and poverty reduction (Uwemedimo et al., 2017). The Trump Administration unsuccessfully sought to dismantle the DACA program, while the Biden

<sup>7</sup> Includes both removals and returns. Removals: someone who has been issued a court order or directed by a border patrol agent to leave the country. Returns: someone who is released back across the border without receiving a formal order of removal.



Administration announced its intent to preserve DACA and create a path to citizen for not only ‘dreamers’, but all undocumented individuals who pay taxes and pass background checks (The White House, 2021b).

In the immediate aftermath of 2001 attacks, Canada likewise tightened security at the border. Canada adopted the Immigration and Refugee Protection Act in 2001, replacing that of 1976, which gave the government wider powers to arrest and deport immigrants suspected of being security threats. The Act introduced front-end security screening for refugee claimants, clearer grounds for detention, fewer appeals opportunities, suspensions of refugee claim for people charged with serious crimes, and new grounds to refuse entry to Canada. Pressures for a North America security perimeter led the Canadian government to increase funding for law enforcement agencies that monitor immigration, bolster the number of agents guarding the U.S.-Canada border, and permit U.S. agents to be posted in Canadian ports of entry and departure (Freilich et al., 2006). In 2004, both countries signed the Canada-U.S. Safe Third Country Agreement, requiring refugee claimants to apply for protection in the first of the two countries entered.

***Refugees and Asylum Seekers*** In a series of unprecedented Executive Orders and Proclamations, the Trump Administration significantly weakened the U.S. refugee program. Despite being the world’s longtime leader on resettlement, accepting more than two-thirds of the world’s resettled refugees during the previous decade, the Trump Administration reduced the number of refugees the U.S. accepts annually from the 110,000 level originally set for 2017 by the Obama Administration to 30,000 for 2019 and a record low of 18,000 in 2020 (Batalova et al., 2021). In efforts that were thwarted by courts, Trump likewise attempted to suspend visas to Muslim-majority countries and suspend the resettlement program for 120 days in 2017 to review and strengthen vetting procedures. Since entering office, President Biden has

reversed Trump refugee restrictions, boosting admissions to 62,500 during the 2020–2021 fiscal year, with a target of 125,000 for his first year in office (The White House, 2021c).

In contrast to the U.S. under the Trump Administration, Canada has continually upheld its humanitarian obligations. From 2017, Canada experienced an influx of asylum seekers entering irregularly (e.g., through border crossings like Roxham Road), a result of U.S. policy changes under the Trump Administration. The influx included individuals who faced real or perceived risks of losing their Temporary Protected Status. While placing immense pressure on Canada’s Immigration and Refugee Board, the government committed to resettling approximately 25,000 refugees in 2017 and 27,000 in 2018, more than double the number pledged in 2015 (Fratzke, 2017). The Trudeau Administration is responding to these pressures through attempts to hear and adjudicate claims more quickly and expedite processing of work permits so asylees can support themselves independently (Government of Canada, 2020a). Notably, this has not discouraged the government from admitting people on humanitarian grounds. As part of the Immigration Levels Plan, Canada has pledged to admit over 150,000 refugees (includes asylees) and other humanitarian claimants between 2021 and 2023 (Government of Canada, 2020b).

***Non-immigrant Visa and Green Card Holders*** Legislation, such as the Patriot Act (2001) and Enhanced Border Security and Visa Entry Reform Act (2002), were introduced to intensify the screening of individuals with non-immigrant visas seeking to enter the U.S., track their status once admitted, and verify their departure. Other programs, such as the National Security Entry-Exit Registration System (2002), proved highly controversial by mandating that certain men and boys from predominantly Muslim countries report to local immigration offices (Penn State Law, 2011). The system was fully dismantled in 2016.

In response to the COVID-19 pandemic and economic contraction in 2020, the Trump Administration put a 60-day hold on the issuance of Green Cards and employment-based visas for high-skilled workers (H1-B visas) under justification of protecting jobs for unemployed U.S. workers. Subsequently, Trump announced that he would sign Executive Orders to enact sweeping changes to immigration policy, including a merit-based immigration system that would prioritize admission of immigrants with certain education and employment qualifications and would decrease family-based immigration. He also spoke about eliminating the Diversity lottery, a program in place since 1995 through which one million people have received visas. Beyond lifting the restrictions on visas since coming into office, President Biden created an Immigration Bill intended to modernize the country's immigration system. Key tenets included an earned roadmap to citizenship for undocumented individuals, increasing per-country caps on family-based and economic immigration, and prohibiting future bans based on religion or ethnicity (The White House, 2021d).

Despite increased focus on security, the rhetoric towards immigration in Canada continues to be broadly positive. Across Administrations, annual reports to parliament on immigration consistently presented foreign-born flows as imperative for economic growth and countering population aging, with steady support for Canada's humanitarian obligations (Government of Canada, 2019). In stark contrast to immigration constraints imposed by the Trump Administration in 2020, the Government of Canada committed to increasing its total immigrant admissions. Specifically, the Immigration Levels Plan (2021–2023) committed to admitting more than 1.2 million new permanent residents over a three-year period – carrying out what is a managed and staged increase in immigration levels. Keeping with Canada's tradition, the majority are expected to be admitted as economic migrants. Moreover, despite temporary restrictions on foreign travel as part of its efforts to stop the spread of coronavirus, applications for permanent residence continue to be processed.

One of the factors affecting the two countries' immigration policies is how their governments are structured and their political systems operate. Canada has a parliamentary system of government, which allows for relatively straightforward ways of enacting new immigration policies. The U.S. shares power between the executive and legislative branches, which increasingly results in political gridlock. While both the U.S. Democrats and Republicans have long agreed that immigration policy reform is needed, they have been unable to decide on what that reform should look like. With the executive and legislative branches unable to reach consensus on what immigration reform should include, the issue remains unresolved. As a result, Presidents rely on Executive Order to handle issues of immigration, and those orders remain in place until revoked by a future President.

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### **Future Implications of Policy Responses**

At the time of writing this chapter, both the U.S. and Canada have set themselves on a course that is pro-family, pro-health, and pro-immigration. If maintained, there is a chance that both countries can see some fertility recovery, resume reductions in adult mortality, and further boost population growth through the flow of immigrants. However, compared to Canada, there is a great deal of uncertainty surrounding the stability of this U.S. stance under future Administrations. As a result, any potential fertility boosting – or fertility decrease stabilizing – benefits of Biden's family-friendly Americas Families Plan may be reversed, as can any mortality reductions from healthcare reforms, or increased growth through a new immigration plan. Under such conditions, if Canada were to maintain its current stance, the two countries may increasingly diverge demographically over time.

While they hold much uncertainty, population projections are helpful for exploring the impact and consequences of future policy decisions – notably the impact of different immigration trajectories for the U.S. For example, according to a high immigration scenario – assuming levels

increase and are sustained by 50% compared to the 2011–2015 period – the U.S. population could grow substantially, reaching 447 million in 2060 if a pro-immigration regime is maintained. However, under a low immigration scenario – where levels are roughly cut in half from what they were in 2011–2015 and sustained at that level – the total projected population could reach just 376 million by 2060. Under an unlikely scenario of zero migration, the U.S. population would grow until 2035 from natural increase and shrink thereafter (Johnson, 2020). The rapid population aging that would result under both the low and zero immigration scenarios would hold serious economic consequences for the country.

In Canada, a low growth scenario – one in which the total fertility rate declines to 1.4 by 2042/43 and immigration levels decrease from current levels – would result in a total population of just 42.9 million by 2050. By contrast, a medium growth scenario – with fertility stable at 1.6 children per woman, moderate immigration, and boosted life expectancy – the total population may grow to 48.7 million by mid-century. Finally, under a high growth scenario – if Canadian fertility were to rebound to 1.79 children, immigration rise above current levels, and the country make additional life expectancy gains – the total population would continue to increase to 56 million by 2050 (Statistics Canada, 2020e).

Population projections may not provide perfect estimations about population size and age structure, but they provide insights into what can happen in the future as a result of policy decisions today. For Canada, the balance between low fertility and immigration creates scenarios that will impact the size of the labor force and economic growth. In the U.S., the declining fertility and ongoing challenges to immigration policy help policymakers understand the future of Social Security and Medicare. These are two programs that the aging U.S. population rely on, but that may not be sustainable without injections of additional skilled workers into the labor force.

## Conclusion

Policies play an important role in establishing a foundation for addressing development-focused issues. Many countries articulate population policies, such as those focused on slowing high fertility and strengthening human capital. While the U.S. and Canada do not have explicit population policies, the demography of both countries is affected by, and addressed implicitly through, social and economic policies that influence mortality, fertility, and migration.

In light of the prominent fertility declines, increased adult mortality – particularly in the U.S. – and fluctuating immigrant flows, the futures of both the U.S. and Canada will be strongly dependent on the course of their policy making. As we have seen throughout this chapter, Canada has shown more consistency and stability in its policy responses, being largely family-friendly, pro-universal healthcare, and strategic in its approach to immigration. These long-standing policy directions create an environment that ensures a solid future of population increase, accompanied by continued economic growth, access to healthcare, and sustainable old-age pensions. Policy direction in the U.S., on the other hand, ebbs and flows from one Administration to the next by party lines, meaning that an enabling policy environment created by one party – like those introduced in the first year of the Biden Administration – can be relatively easily dismantled by the other party in due course, and vice versa. Policies that implicitly discourage fertility, limit access to healthcare, and curtail immigration are likely to result in slowed population growth, with negative consequences for social and economic outcomes.

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## References

- Adserà, A., & Ferrer, A. (2018). The fertility of married immigrant women to Canada. *International Migration Review*, 50(2), 475–505.

- Ahmad, F. B., Cisewski, J. A., Minino, A., & Anderson, R. N. (2021). Provisional mortality data – United States, 2020. *Morbidity and Mortality Weekly Report*, 70(14). The U.S. Department of Health and Human Services/Centers for Disease Control and Prevention.
- Al Sharafat, A. (2019). *Attitudes of the United States' Presidents towards immigration: George W Bush, Barack Obama, Donald Trump*. See <https://www.aaisna.net/wp-content/uploads/2019/09/Al-Sharafat.pdf>. Accessed on 1 Mar 2020.
- Arias, E., & Xu, J. Q. (2020). United States life tables, 2018. *National Vital Statistics Reports*, 69(12). National Center for Health Statistics.
- Avendano, M., & Kawachi, I. (2014). Why do Americans have shorter life expectancy and worse health than people in other high-income countries? *Annual Review of Public Health*, 35, 307–325.
- Barroso, A. (2021). *With a potential 'baby bust' on the horizon, key facts about fertility in the US before the pandemic*. See <https://www.pewresearch.org/fact-tank/2021/05/07/with-a-potential-baby-bust-on-the-horizon-key-facts-about-fertility-in-the-u-s-before-the-pandemic>. Accessed on 7 June 2021.
- Batalova, J., Hanna, M., & Levesque, C. (2021). *Frequently requested statistics on immigrants and immigration in the United States*. See [https://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states-2020?gclid=CjwKCAjwk6P2BRAIEiwAfVJ0rCC-Mw4TJ2MUI251VMZZgvtQ\\_6p-T\\_11lae\\_eEWkHNsSSOruKcuHlxoCTZ8QAvD\\_BwE](https://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states-2020?gclid=CjwKCAjwk6P2BRAIEiwAfVJ0rCC-Mw4TJ2MUI251VMZZgvtQ_6p-T_11lae_eEWkHNsSSOruKcuHlxoCTZ8QAvD_BwE). Accessed on 25 May 2021.
- Budiman, A. (2020). *Key findings about US immigrants*. See <https://www.pewresearch.org/fact-tank/2020/08/20/key-findings-about-u-s-immigrants/>. Accessed on 1 July 2021.
- Case, A., & Deaton, A. (2021). Life expectancy in adulthood is falling for those without a BA degree, but as educational gaps have widened, racial gaps have narrowed. *PNAS*, 11, e2024777118.
- Challinor, A. E. (2011). *Canada's immigration policy: A focus on human capital*. See <https://www.migrationpolicy.org/article/canadas-immigration-policy-focus-human-capital>. Accessed on 9 May 2020.
- Eberstadt, N. (2007). "Demographic Exceptionalism" in the United States: *Tendencies and implications*. See [https://www.aei.org/wp-content/uploads/2011/10/20070223\\_DemographicExceptionalismFinal.pdf](https://www.aei.org/wp-content/uploads/2011/10/20070223_DemographicExceptionalismFinal.pdf). Accessed on 20 June 2020.
- Fratzke, S. (2017). *In wake of cuts to US refugee program, global resettlement falls short*. See <https://www.migrationpolicy.org/article/top-10-2017-issue-6-wake-cuts-us-refugee-program-global-resettlement-falls-short>. Accessed on 25 June 2020.
- Freilich, J. D., Newman, G., & Opresso, M. (2006). Immigration, security, and civil liberties post 9/11: A comparison of American, Australian and Canadian legislative and policy changes. In J. D. Freilich & R. T. Guerette (Eds.), *Migration, culture conflict, crime and terrorism* (pp. 49–70). Ashgate Publishing.
- Government of Canada. (2018). *Understanding Canada's immigration system*. See <https://www.canada.ca/en/immigration-refugees-citizenship/campaigns/irregular-border-crossings-asylum/understanding-the-system.html>. Accessed on 4 Apr 2020.
- Government of Canada. (2019). *2018 Annual Report to Parliament on Immigration*. See <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/annual-report-parliament-immigration-2018/report.html>. Accessed on 4 Apr 2020.
- Government of Canada. (2020a). *Irregular border crossings – What is Canada doing?* See <https://www.canada.ca/en/immigration-refugees-citizenship/news/2018/07/irregular-border-crossings%2D%2Dwhat-is-canada-doing.html>. Accessed on 5 Mar 2021.
- Government of Canada. (2020b). *Supplementary information for the 2021–2023 immigration levels plan*. See <https://www.canada.ca/en/immigration-refugees-citizenship/news/notices/supplementary-immigration-levels-2021-2023.html>. Accessed on 5 Mar 2021.
- Government of Canada. (2021a). *Budget 2021: A recovery plan for jobs, growth, and resilience*. See <https://www.budget.gc.ca/2021/home-accueil-en.html>. Accessed on 20 May 2021.
- Government of Canada. (2021b). *CCB young child supplement*. See <https://www.canada.ca/en/revenue-agency/services/child-family-benefits/ccb-young-child-supplement.html>. Accessed on 21 May 2021.
- Government of Canada, Office of the Superintendent of Financial Institutions. (2018). *30th Actuarial Report on the Canadian Pension Plan*. See <https://www.osfi-bsif.gc.ca/Eng/Docs/PPP30.pdf>. Accessed on 3 Mar 2020.
- Haub, C. (2006). Chapter 17: Population policy in the United States. In G. Caselli, J. Vallin, & G. Wunsch (Eds.), *Demography: Analysis and synthesis. A treatise in population studies* (Vol. IV, pp. 395–406). Academic/Elsevier.
- Institute for Health Metrics and Evaluation (IHME). (2020). *Global Burden of Disease Study 2019 Data*. See <http://ghdx.healthdata.org/gbd-2019>. Accessed on 19 Mar 2020.
- Johnson, S. (2020). *A changing nation: Population projections under alternative immigration scenarios* (Current Population Reports P25-1146). U.S. Census Bureau.
- Kaiser Family Foundation. (2021). *Marketplace enrollment data 2014–2021*. See <https://www.kff.org/health-reform/state-indicator/marketplace-enrollment/?activeTab=graph&currentTimeframe=0&startTimeframe=7&sortModel=%7B%22collId%22:%22Location%22,%22sort%22:%22asc%22%7D>. Accessed on 30 May 2021.
- Keller, T. (2018). *Canada has its own ways of keeping out unwanted immigrants*. See <https://www.theatlantic.com/ideas/archive/2018/07/canada-immigration-success/564944>. Accessed on 20 Nov 2020.

- Martin, D., Miller, A. P., Quesnel-Vallee, A., Caron, N. R., Vissandjee, B., & Marchildon, B. (2018). Canada's universal health-care system: Achieving its potential. *The Lancet*, 391, 1718–1735.
- Martin, J. A., Hamilton, B. E., Osterman, M. J. K., & Driscoll, A. K. (2021). Births: Final data for 2019. *National Vital Statistics Reports*, 70(2). National Center for Health Statistics.
- Matthews, T. J., & Hamilton, B. (2009). *Delayed child-bearing: More women are having their first child later in life* (NCHS Data Brief No. 21). National Center for Health Statistics.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- Miller, C. C. (2018). *Americans are having fewer babies. They told us why*. See <https://www.nytimes.com/2018/07/05/upshot/americans-are-having-fewer-babies-they-told-us-why.html>. Accessed on 19 Nov 2020.
- Milligan, K. (2005). Subsidizing the stork: New evidence on tax incentives and fertility. *Review of Economics and Statistics*, 83, 539–555.
- National Research Council. (2011). *Explaining divergent levels of longevity in high-income countries*. The National Academies Press.
- Passel, J. S., & Cohn, D. (2019). *Mexican decline to less than half the US authorized immigrant population for the first time*. See <https://www.pewresearch.org/fact-tank/2019/06/12/us-unauthorized-immigrant-population-2017>. Accessed on 15 Nov 2020.
- Penn State Law, Immigrants' Rights Clinic and Penn State School of International Affairs. (2011). *The 9/11 effect and its legacy on U.S. Immigration Laws: Essays, remarks, and photographs* (Center for Immigrants' Rights Clinic Publications 9). University Park.
- Pew Research Center. (2015). *Selected US Immigration Legislation and Executive Actions, 1790–2014*. See <https://www.pewresearch.org/hispanic/2015/09/28/selected-u-s-immigration-legislation-and-executive-actions-1790-2014>. Accessed on 22 Mar 2020.
- Ranabhat, C. L., Atkinson, J., Park, M. B., Kim, C. B., & Jakovljevic, M. (2018). The influence of universal health coverage on Life Expectancy at Birth (LEAB) and Healthy Life Expectancy (HALE): A multi-country cross-sectional study. *Frontiers in Pharmacology*, 9, 960.
- Russell, A. (2017). *Here's why Canadians are having fewer children*. See <https://globalnews.ca/news/3429950/canada-fewer-children-census-216>. Accessed on 2 Apr 2020.
- Sobotka, T., Skirbekk, V., & Philipov, D. (2011). Economic recession and fertility in the developed world. *Population and Development Review*, 37(2), 267–306.
- Sobotka, T., Matysiak, A., & Brzozowska, Z. (2020). *Policy responses to low fertility: How effective are they?* (Working Paper No. 1). United Nations Population Fund, Population and Development Branch.
- Statistics Canada. (2015). *Ninety years of change in life expectancy*. See <https://www150.statcan.gc.ca/n1/pub/82-624-x/2014001/article/14009-eng.htm>. Accessed on 4 Apr 2020.
- Statistics Canada. (2017a). *Focus on geography series, 2016 Census*. See <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-can-eng.cfm?Lang=Eng&GK=CAN&GC=01&TOPIC=7>. Accessed on 4 Apr 2020.
- Statistics Canada. (2017b). *Immigration and ethnocultural diversity: Key results from the 2016 Census*. See <https://www150.statcan.gc.ca/n1/daily-quotidien/171025/dq171025b-eng.htm?indid=14428-1&indgeo=0>. Accessed on 6 Apr 2020.
- Statistics Canada. (2019a). *Causes of death, 2017*. See <https://www150.statcan.gc.ca/n1/daily-quotidien/190530/dq190530c-eng.htm>. Accessed on 5 May 2020.
- Statistics Canada. (2019b). *Analysis: Total population. Annual Demographic Estimates: Canada, Provinces and Territories 2019*. See <https://www150.statcan.gc.ca/n1/pub/91-215-x/2019001/sec1-eng.htm>. Accessed on 14 Apr 2020.
- Statistics Canada. (2020a). *Table 13-10-0418-01 Crude birth rate, age-specific fertility rates and total fertility rate*. See <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310041801>. Accessed on 23 May 2021.
- Statistics Canada. (2020b). *Life Tables, Canada, Provinces and Territories, 1980/1982 to 2017/2019*. See <https://www150.statcan.gc.ca/n1/en/catalogue/84-537-X>. Accessed on 5 May 2021.
- Statistics Canada. (2020c). *Deaths and age-specific mortality rates, by selected grouped causes*. See <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310039201>. Accessed on 5 May 2021.
- Statistics Canada. (2020d). *Deaths, 2019*. See <https://www150.statcan.gc.ca/n1/daily-quotidien/201126/dq201126b-eng.htm>. Accessed on 6 May 2021.
- Statistics Canada. (2020e). *Population projections for Canada (2018 to 2068), provinces and territories (2018–2043)*. See <https://www150.statcan.gc.ca/n1/pub/91-520-x/91-520-x2019001-eng.htm>. Accessed on 30 Mar 2021.
- Statistics Canada. (2021a). *Provisional death counts and excess mortality, January 2020 to January 2021*. See <https://www150.statcan.gc.ca/n1/en/daily-quotidien/210416/dq210416c-eng.pdf?st=1WImwKbN>. Accessed on 30 Apr 2021.
- Statistics Canada. (2021b). *Canada's population estimates, fourth quarter 2020*. See <https://www150.statcan.gc.ca/n1/daily-quotidien/210318/dq210318c-eng.htm>. Accessed on 22 May 2021.
- Statistics Canada. (2021c). *Population estimates on July 1st, by age and sex*. See <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501>. Accessed on 10 May 2021.
- Statistics Canada. (2021d). *Estimates of the components of demographic growth, annual*. See <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000801>. Accessed on 11 May 2021.

- Statistics Canada. (2021e). *Table 17-10-0023-01 estimates of non-permanent residents, quarterly, inactive*. See [https://www150.statcan.gc.ca/t1/tb11/en/tv.action?pid=1710002301](https://www150.statcan.gc.ca/t1/tb11/en/tv/action?pid=1710002301). Accessed on 25 May 2021.
- Statistics Canada. (2021f). *Persons granted lawful permanent status*. See <https://open.canada.ca/data/en/dataset/f7e5498e-0ad8-4417-85c9-9b8aff9b9eda>. Accessed on 26 May 2021.
- The OASDI Board of Trustees. (2021). *The 2021 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. See <https://www.ssa.gov/OACT/TR/2021/tr2021.pdf>. Accessed on 15 Nov 2021.
- The White House. (2021a). *Fact Sheet: The American Families Plan*. See <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/28/fact-sheet-the-american-families-plan>. Accessed on 20 May 2021.
- The White House. (2021b). *Preserving and fortifying deferred action for childhood arrivals*. See <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/preserving-and-fortifying-deferred-action-for-childhood-arrivals-daca>. Accessed on 21 May 2021.
- The White House. (2021c). *Statement by President Joe Biden on Refugee Admission*. See <https://www.whitehouse.gov/briefing-room/statements-releases/2021/05/03/statement-by-president-joe-biden-on-refugee-admissions>. Accessed on 24 May 2021.
- The White House. (2021d). *Fact Sheet: President Biden sends Immigration Bill to Congress as part of his commitment to modernize our system*. See <https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/fact-sheet-president-biden-sends-immigration-bill-to-congress-as-part-of-his-commitment-to-modernize-our-immigration-system>. Accessed on 24 May 2021.
- The White House, George Bush Archives. (2007). *President Bush's plan for Comprehensive Immigration Reform*. See <https://georgewbush-whitehouse.archives.gov/stateoftheunion/2007/initiatives/immigration.html>. Accessed on 25 Mar 2020.
- Thevenon, O., & Gauthier, A. H. (2010). Family policies in developed countries: A “fertility-booster” with side-effects. *Community, Work & Family*, 14(2), 197–216.
- Thompson, F. J. (2020). *Six ways Trump has sabotaged the Affordable Care Act*. See <https://www.brookings.edu/blog/fixgov/2020/10/09/six-ways-trump-has-sabotaged-the-affordable-care-act>. Accessed on 22 May 2021.
- Timæus, I. M., & Moultrie, T. A. (2008). On postponement and birth intervals. *Population and Development Review*, 34(3), 483–510.
- U.S. Census Bureau. (2019). *2019 U.S. population estimates continue to show the nation's growth is slowing*. See <https://www.census.gov/newsroom/press-releases/2019/popest-nation.html>. Accessed on 20 Apr 2020.
- U.S. Census Bureau. (2020). *2019 American Community Survey*. See <https://data.census.gov/cedsci>. Accessed on 27 May 2021.
- U.S. Census Bureau. (2021). *National population totals and components of change 2010–2019, population, population change, and estimated components of change April 1, 2010 to July 1, 2019*. See [https://www.census.gov/data/tables/time-series/demo/popest/2010s-national-total.html#par\\_textimage\\_2011805803](https://www.census.gov/data/tables/time-series/demo/popest/2010s-national-total.html#par_textimage_2011805803). Accessed on 14 May 2021.
- U.S. Centers for Disease Control and Prevention. (2020). *Mortality in the United States, 2018* (Data brief 355). Centers for Disease Control and Prevention.
- U.S. Centers for Disease Control and Prevention, National Center for Health Statistics (NCHS). (2020). *Historical data, 1900–1998: Life expectancy, life tables*. Centers for Disease Control and Prevention. See [https://www.cdc.gov/nchs/products/life\\_tables.htm](https://www.cdc.gov/nchs/products/life_tables.htm). Accessed on 30 Mar 2020.
- U.S. Office of Immigration Statistics. (2020a). *Lawful permanent residents*. See <https://www.dhs.gov/immigration-statistics/lawful-permanent-residents>. Accessed on 25 May 2021.
- U.S. Office of Immigration Statistics. (2020b). *Yearbook of Immigration Statistics 2019*. See <https://www.dhs.gov/immigration-statistics/yearbook/2019>. Accessed on 25 May 2021.
- United Nations. (2019). *World population prospects: The 2019 revision. Comprehensive tables*. United Nations, Department of Economic and Social Affairs, Population Division.
- Uwemedimo, O., Monterrey, A. C., & Linton, J. M. (2017). A dream deferred: Ending DACA threatens children, families, and communities. *Pediatrics*, 140(6), e20173089.
- Whitaker, R. (1991). *Canadian immigration policy since confederation*. Canadian Historical Association.
- Woolf, S. H., & Schoemaker, H. (2019). Life expectancy and mortality rates in the United States, 1959–2017. *JAMA*, 322(20), 1996–2016.
- Woolhandler, S. (2017). The relationship of health insurance and mortality: Is lack of insurance deadly? *Annals of Internal Medicine*, 167(6), 424–431.
- World Bank. (2020). *Life expectancy at birth, total*. World Bank Group. See [https://data.worldbank.org/indicator/SP.DYN.LE00.IN?most\\_recent\\_year\\_desc=false](https://data.worldbank.org/indicator/SP.DYN.LE00.IN?most_recent_year_desc=false). Accessed on 22 May 2021.
- Xu, J. Q., Murphy, S. L., Kochanek, K. D., & Arias, E. (2020). *Mortality in the United States, 2018* (NCHS data brief No. 355). National Center for Health Statistics.
- Zong, J., & Batalova, J. (2018). *Mexican immigrants in the United States*. See <https://www.migrationpolicy.org/article/mexican-immigrants-united-states>. Accessed on 30 April 2020.



# Population Policies in Latin America and the Caribbean: From Carmen Miró to the Montevideo Consensus

# 10

José Miguel Guzman

## Introduction

World population policies have shifted frequently in the past 50 years, influenced by a mix of governmental concerns, adaptation to changing demographic trends, a battle between who to blame for Third World under-development, conceptual struggles on what population policies should be, and the increasing strength of the women's movement seeking to place human and women's rights at the center of the discussion. When the 1974 Bucharest Population Conference took place, Carmen Miró, a pioneer in Latin American population and demography, had already written, 4 years before, a seminal paper "Population Policy: What? Why? So that? How?", in the context of the Regional Latin American Population Conference, held in Mexico in 1970 (Miró, 1970). This paper, and her role as Director of the *Centro*

Carmen Miró has been recognized as a pioneer in advancing population and development agenda in Latin America, pushing hard for the need to frame family planning in a population policy framework. She received her Ph.D. in Demography at the London School of Economics in the late 1950s and continued her work and contributions for at least four more decades.

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*Latinoamericano de Demografía*/Latin American Demographic Center (CELADE), founded in 1957, set the tone for what later became the epicenter of the discussion of population policies in Latin America, at least until the 1994 Cairo International Conference on Population and Development.

Somewhat surprisingly, thanks to the efforts of medical associations, NGO's, population experts and advocates, in spite of the very strong opposition of some sectors in the Catholic Church and certain political groups (Mayone Stycos, 1965), family planning activities started in Latin America at the beginning/middle of the 1960s and were progressively extended socially and geographically. As a result, contraceptives became more and more widely supplied and used.<sup>1</sup>

<sup>1</sup> Among the factors that have contributed to the widespread use of family planning in Latin America, Bertrand et al. (2015a, b) have identified the following: "1. The development of strong NGOs that pioneered the family planning movement, tested new FP methodologies, and continue to tackle politically sensitive issues 2. A socio-political environment at the macro level that gradually supported family planning 3. Sustained external support in financial and technical assistance from USAID and other donors 4. Synergistic coordination among governments, external agencies, NGOs, and civil society 5. The development of local expertise in key programmatic, policy, and management areas 6. Improvement in the availability of information as a tool to drive decision making and open doors to new thinking and new approaches 7. Strategically designed, wide-reaching communication activities to support change in individual behavior and social norms 8. Mechanisms to ensure program financing that evolved to fit the times 9. Effective

The initial kick off was supported by an important increase in funding dedicated to population and family planning activities starting in the 1960s. Part of these funds were committed to support research centers that carried out data collection and analytical studies. In most countries, there was no good data available on demographic variables, particularly on fertility, and in addition, women's desires about contraception had never been investigated in national surveys. It was evident that family planning services would not be successful unless countries had the evidence to track key demographic variables and to substantiate the existence of an unmet need for contraception.

It also became more and more important to frame these programs in the context of the national development agenda, through showing how development could benefit from national population policies. Producing good data, incorporating family planning services in the Maternal and Child Programs of the Ministries of Health, and promoting development policies that framed population dynamics (not only fertility) as part of the broad area of government action were all central to the discussion and action in the population arena in the region. This chapter shows how the ecosystem of national population policies evolved from the 1960s to the 2013 Montevideo Consensus, and how this evolution was the result of the interaction between the major steps taken in international agreements and global cooperation on population policies and the particular characteristics and evolution of the socioeconomic, cultural, and political landscape of Latin America.

The U.S. Agency for International Development (USAID), the United Nations Population Fund (UNFPA), and other international donors contributed extensively to this process. As part of the objective of placing family planning in a broader perspective, as recommended by the 1974 Bucharest Conference, and previously by the 1970 Latin American Regional Population Conference, the need for countries to develop

population policies emerged strongly. These donors provided support to the development of the new population councils or similar entities that would design, implement, and monitor comprehensive population policies. But the fact is that in most cases, these entities never had the political and conceptual strength to go beyond family planning and to make a real difference in creating a situation in which family planning programs would be part of a broader conceptualization of population and development strategies, as promoted in the Bucharest Plan of Action. Even if other demographic components such as migration, unplanned urbanization, and population distribution were included in policy discussions, with few exceptions, no specific policies were developed to address them, and no programs created to implement relevant policies.

Could it be said that Latin American countries, or at least some of them, developed consistent and well-defined population policies? The short answer is no. However, there is the case of Mexico that can be considered as the only country in the region that established a national policy that satisfied the four requirements mentioned by Michael Micklin (1994).<sup>2</sup> But even in the case of Mexico, there is no indication that a fully integrated consideration of population and development strategies has been considered. Many other countries developed some kind of institutional arrangements that helped the process, although most of these institutions died without having had a strong influence in national development policies and programs.

At the end, the history of population policies in Latin America is a story of several repetitive attempts to make sense of the complexity of an area such as population and development, having as a guide the main recommendations coming

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*advocacy to achieve major political gains 10. Significant investments in contraceptive commodities and security*" (Bertrand et al., 2015a, b: xi).

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<sup>2</sup> Micklin (1994: 2) considers that for a national population policy to be viable, the government must officially make explicit its intentions to alter one or more demographic variables. Additionally, "it must satisfy four other conditions. First, necessary information must be available. . . . Second, institutional structures must exist or be created. . . . Third, the necessary resources must be provided. . . . Finally, the government must show sufficient political will. . . ."



from international population conferences. As will be shown in this chapter, many of these attempts were not successful for many reasons, one of them being the lack for many years of a clear connection between socioeconomic development strategies and the demographic transformations occurring in the region (rapid urbanization, changing age structures, inter and intra-regional migration, etc.). Indeed, most policymakers continued to lack a good understanding of the dynamics between population and development, and how these interactions impacted every aspect of the lives of their people.

That is why the story of family planning is the most relevant starting point to explore the history of population policies in the region, as it has been the focus of population policy design. This is because it was long perceived as the only area where a direct intervention that affected the demographic dynamics was feasible.

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## The First Years: The Shining 1960s

### Early Adoption of Family Planning

The history of population policies in Latin America is rooted in the efforts to establish family planning programs (May, 2012). These efforts can be defined as one of the most fascinating stories in terms of the conjunction of changes in individual expectations about fertility and the expected role of governments and the international community in providing services to women desiring to have fewer children. By 1960, many countries of Latin America were at the early stages of the demographic transition (fertility was very high and mortality had already begun declining after the 1940s) and were experiencing very high population growth. The regional average was the highest of any region of the world (2.7%), with some countries with figures higher than the average (Dominican Republic, 3.3%; Mexico and Colombia, 3.1%; Brazil, 2.9%; Peru, 2.8%) (United Nations, 2019). As John Bongaarts and his colleagues wrote in Chap. 5: *Population, Development, and Policy* of this *Handbook* (Bongaarts et al., [this](#)

[volume](#)), when the United Nations published their population projections in the 1950s that predicted the high rate of population growth that was going to occur in the next decades, a great concern arose about the negative consequences that such a rapid growth could have in Latin America, Asia, and Africa. The main ingredients of an international alarm regarding the risks of rapid population growth were set up at that moment.

As can be seen in Table 10.1, for almost all the Latin American countries, attention to family planning began in the 1960s. But the initial phases of family planning in Latin America were unsteady (Santiso-Gálvez et al., 2015a, b, c, d). The first steps that were initiated in the 1960s resulted from a combination of external and internal influences. Externally, an increase of funding for family planning activities by the United States basically aimed at transferring this medical innovation to the countries of the region. This was part of a strategy to extend U.S. influence through population control strategies and actions<sup>3</sup>

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<sup>3</sup> In his [Annual Message to the Congress on the State of the Union](#) of January 12, 1966 (Congress on the State of the Union, 1966), the U.S. President, Lyndon B. Johnson, said “*I will also propose the International Health Act of 1966 to strike at disease by a new effort to bring modern skills and knowledge to the uncared-for, those suffering in the world, and ... to help countries trying to control population growth, by increasing our research – and we will earmark funds to help their efforts.*” Some months later, on October 18, 1966, he received the *Margaret Sanger Award in World Leadership* for his “vigorous and far-sighted leadership.” He was presented as someone who “... has been the major force in shaping a virtual revolution in government thinking to help to meet the global population crisis” in the *Pittsburgh Post-Gazette* – October 11, 1966; see <https://news.google.com/newspapers?id=VivNAAAIBAJ&sjid=wmwDAAAIBAJ&dq=margaret-sanger-award+johnson&pg=2359,1440141>, accessed on January 5, 2022. Under his mandate, “... the U.S. Agency for International Development began providing contraceptives in its overseas development programs. President Johnson placed the prestige and influence of his office behind legislative and administrative actions to increase funding and staffing for voluntary family planning services for those who need them most, here and around the world” (see Planned Parenthood website <https://www.plannedparenthood.org/about-us/newsroom/campaigns/ppfa-margaret-sanger-award-winners#Johnson>, accessed on January 5, 2022).

**Table 10.1** Early adoption of family planning services in Latin American and Caribbean countries in the 1960s

Country	Date	Decision
Argentina	1966	A family planning (FP) association, the Argentinian Family Protection Association (AAPF), was created and managed some clinics in Buenos Aires and in some other cities.
Bolivia	1967	The Center for Population Studies was created in 1967 and conducted sociological research on fertility.
Brazil	1965	A private association, the Family Wellbeing Civil Society (BENFAM), started providing some family planning services.
	1967	BENFAM is accepted as a member of the International Planned Parenthood Federation (IPPF).
Chile	1963	Various working groups are created by both medical organizations and hospitals and the private sector, and family planning services are provided.
	1965	Creation of the Chilean Family Protection Association (APROFA) by a group of doctors concerned about abortion impacts on women's health, with legal status given by the government. Committee on Population and Family (CPF) created by the government to provide advice for a national population policy.
	1966	The Ministry of Health instructed that family planning services be part of the national health programs of maternal and child care, implementing a recommendation of the CPF committee.
Colombia	1964	The Colombian Association of Medical Schools (ASCOFAME) created in 1959, started developing training on FP methods and established the Division of Population Studies (DEP).
	1965	A private family planning organization (PROFAMILIA) began providing services in urban areas.
	1967	FP services started in rural clinics, under a government sponsored maternal health program.
	1967	The Ministry of Health started providing family planning services as part of a maternal and child health program.
	1969	MOH established a Maternal and Child Health (MCH) Division and took over the FP service delivery program from ASCOFAME.
Costa Rica	1963	A private group started offering FP services in rural areas.
	1968	Initiation of the Family Planning Program.
Cuba	1968	A government program incorporated family planning into the Maternal and Child Health Services provided by the government.
Dominican Republic	1966	Creation of the <i>Asociación Pro Bienestar de la Familia Dominicana</i> (Dominican Family Welfare Association), a private FP institution.
	1968	Creation of CONAPOFA (National Population and Family Council) to be responsible for analyzing population growth determinants and impacts, and to develop a national population policy, including support to the work of the MOH on family planning.
	1969	The <i>Asociación Pro Bienestar de la Familia Dominicana</i> became an associate member of IPPF and was renamed Profamilia some years after.
Ecuador	1962	USAID supported the creation of the first family planning non-governmental entity, the Association for the Well-being of the Ecuadorian Family (APROFE) that soon started distributing contraceptives.
El Salvador	1962	The Salvadoran Demographic Association (ADS), also known as PROFAMILIA, was established and operated its own FP clinics.
	1964	The government opened the first maternal health clinic in the Department of Preventive Medicine of UES School of Medicine.
Guatemala	1964	The <i>Asociación Pro Bienestar de la Familia de Guatemala</i> (APROFAM, the Guatemalan Association for Family Welfare) was created as a private entity.
	1965	APROFAM opened its first clinic at the Hospital of Guatemala City. The Guatemalan Social Security Institute (IGSS) opened the first FP clinic offering PF methods and counseling in the framework of its maternal and child health services.

(continued)

**Table 10.1** (continued)

Country	Date	Decision
	1967	A tripartite agreement (U.S. Agency for International Development (USAID), Ministry of Public Health and Social Assistance, and APROFAM) was signed. It authorized APROFAM to provide FP services in 20 centers of the MOH.
	1969	APROFAM became an associate member of the International Planned Parenthood Federation (IPPF).
Haiti	1964	The National Council of Family Planning was founded with support from the government.
	1965	Private facilities were already providing some FP services mainly in Port-au-Prince, the capital city.
	1969	In 1969, the Haitian government promoted a pilot project starting in two settings: one urban and one rural.
Honduras	1961	The Honduran Family Planning Association (ASHOPLANFA) was founded.
	1964	First FP clinic opened.
	1966	The government makes family planning methods available within the national maternal and child health program.
Jamaica	1957	The Jamaica Family Planning Association, later affiliated as a member of the International Planned Parenthood Federation (IPPF), was created with the contribution of several private organizations.
	1958	Family planning was fully endorsed by the Jamaica Federation of Women.
	1964	The Jamaica Family Planning Association obtained financial assistance from the United States (USAID).
	1966	The Family Planning Association continued to provide services and the role of the MOH increased by providing family planning services in its hospitals and health clinics.
	1969	The Jamaica Federation of Women supported a mobile family planning clinic managed by the Family Planning Association.
Mexico	1958	Creation of Pro Maternal Health Association (APROSAM) which started developing some FP activities.
	1965	Creation of the Foundation for Population Studies (FEPAC).
	1967	FEPAC (that became later MEXFAM) was incorporated as a member of the International Planned Parenthood Federation (IPPF).
	1968	The National Nutritional Institute started the first family planning program implemented in the public sector.
Nicaragua	1968	The Ministry of Health (MOH) started offering information and clinical services on FP in collaboration with the Moravas Clinics and with the support of USAID.
	1968	A Program called the <i>Programa Pro-Bienestar de la Familia</i> (Program for Family Welfare) was initiated as part of the activities of the Maternal Health Division of the MOH.
	1969	The INSS ( <i>Instituto Nicaragüense de Seguridad Social</i> ) started offering information and services on PF for its workers.
Panama	1965	Creation of the Panamanian Family Planning Association (APLAFPA).
	1969	The Ministry of Health created a family planning program in the framework of its Maternal and Child Health Program. This program transferred APLAFPA's clinics to the official program.
Paraguay	1966	The Paraguayan Center for Population Studies (CEPEP) was founded to develop activities of research, awareness creation, and delivering FP information to the public.
	1967	CEPEP joined the International Planned Parenthood Federation (IPPF) as an associate member.
Peru	1964	A Center for Population Development was established under a presidential decree, within the Ministry of Labor. Conducted fertility surveys in low-income urban areas and set up some clinics.
	1967	The Peruvian Family Protection Association (APPF) was founded in 1967 and started operating clinics in Lima.
Uruguay	1962	An Association of Family Planning was established in 1962, with some contribution from the Ministry of Public Health and the Faculty of Medicine of the National University.

(continued)

**Table 10.1** (continued)

Country	Date	Decision
Venezuela	1965	A population division was created by the Ministry of Public Health.
	1967	A family planning association (private), was legally recognized and started implementing some limited programs.

Note: This table has been prepared by the author, and is based on the references at the end of this chapter; see *inter alia* Donoso (2007), Felitti (2012), Fernández and Hernández (2009), Rojas Mira (1994), Simmons and Cardona (1974), USAID (2016) and Ward et al. (2015b)

by supporting the introduction of contraceptive delivery services and increasing financial support. As part of this process, by the end of the decade, the United Nations Population Fund (UNFPA), created in 1969, started providing support too, with a strong component of data collection and analysis.

Internally, in most countries, contraceptive distribution activities and family planning associations were started by medical doctors' groups that saw an opportunity to be on top of the medical innovations brought by the new contraceptives and to satisfy the increasing needs of women to control their fertility and have fewer children. There were also increasing concerns, at least in some countries, about the very high prevalence of unsafe abortions, as in the case of Chile.<sup>4</sup>

But the initiation of service delivery was confronted with some backlashes, as it was met with intense opposition from several constituencies. First, from the political left, because of the perception that the United States government sought increase its political influence in the region through financial support for the promotion of family planning with the aim to reduce population growth in the region (Mayone Stycos, 1965). Second, and more importantly, because the Catholic Church, and particularly its hierarchy, became an opposing force. What is clear is that, by the middle of the decade, family planning and the use of newly developed contraceptive methods was a hot topic.<sup>5</sup>

In spite of this confrontation, by the end of the decade, most Latin American countries had begun some type of activity to provide contraceptive methods to women (see Table 10.1). In some countries, these initiatives were taken by the Ministries of Health, to a greater or lesser extent, and integrated as part of the official national maternal and child health programs.

### Other Developments: Data Collection and Research on Fertility and Family Planning

Together with the initiation of family planning services, this was a crucial decade for demographic data collection and analysis. The creation of different national research centers, some of them linked to universities, was part of the process. However, the most important development at the regional level was the consolidation of the Latin American Demographic Center (CELADE), created in 1957. CELADE, under the direction of Carmen Miró, implemented a pioneering model integrating technical assistance, training, and research and had a good reputation for being listened to by governments and scholars because of its "dispassionate" and "objective analysis" of the population situation (Weaver, 1978).

CELADE designed and conducted the first comparative surveys on fertility and family planning in Latin America, namely The

<sup>4</sup> Paxman et al. (1993) describe that in Chile in 1960, almost 60,000 women were hospitalized due to abortion complications, which constituted 24 percent of all obstetrical admissions to hospitals.

<sup>5</sup> "In 1965, the Cornell International Population Program decided to determine the extent of attention to population problems and family planning in Latin American

*newspapers and began to collect newspaper clippings on these topics. Through the services of the Burrelle's Press Clipping Bureau, a surprising total of six thousand clippings was obtained in 1965 and over eight thousand were gathered in 1966. Approximately three-quarters of these articles explicitly mentioned birth control or contraceptive methods"* (Mayone Stycos, 1967: 67).

Comparative Survey Program on Fertility in Latin America (PECFAL) (Simmons et al., 1982). The surveys first covered, between 1964 and 1966, urban areas (PECFAL-Urban), including seven cities of the region (Bogota, Buenos Aires, Mexico City, Caracas, Panama City, Rio de Janeiro, and San Jose). Then, between 1967 and 1969, the surveys were extended to the rural areas of Colombia, Costa Rica, Mexico, and Peru. Those surveys contributed new information about the level of fertility and infant mortality and provided detailed information about the prevalence of contraceptive use and the family planning preferences of women and couples. The information collected showed that there were important differences between countries. In some countries, fertility was very high, particularly in rural areas with a total fertility rate (TFR) close to eight children per woman. The PECFAL surveys created the foundations for the World Fertility Survey Program, implemented during the 1970s, as well as for the following USAID-funded Demographic and Health Surveys (DHS) Program, that started in 1984 and is still operating.

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## Around Bucharest 1974

### Demographic Changes and Family Planning Services

When the decade of the 1970s started, family planning services did not exist in all countries,<sup>6</sup> and in most countries having some FP activities, services were restricted to selected health centers in certain areas, mainly in capital cities, covering only particular groups, such as the middle-high and upper social strata. Regarding the opposition to family planning, the push against contraceptives that was initially found in most

countries started to decline in the 1970s, in the face of the increasing acceptance of these services by women and couples, the unprecedented increase in family planning demand from the public,<sup>7</sup> and the fact that there was not a cohesive position against family planning inside some of the opposition constituencies (Weaver, 1978). Even within the Catholic Church, the position was not monolithic and varied widely by and within the countries.<sup>8</sup>

During this decade, many of these programs consolidated and expanded their coverage, though with different intensities. Contraceptive prevalence increased and fertility showed clear signs of declining. The new emerging data from both the PECFAL surveys, and later the World Fertility Survey, confirmed that a decline in fertility was occurring and that it had started, in many countries, sometime around the second half of the 1960s.<sup>9</sup> Detailed analysis by socioeconomic and educational groups using retrospective census data showed that even in countries with initial high fertility (such as the Dominican Republic, Costa Rica, and Colombia) fertility levels at the beginning of the 1960s, particularly in the more educated sectors and among those living in urban areas, were already at least partially controlled, with a total fertility rate around or below five children per woman, compared to the women living in rural areas who had a fertility rate of more than nine children per woman (Behm & Guzman, 1979). What followed was a generalized and sustained decline in fertility in all social groups with a trend to converge to the situation that can be seen today in the region.

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<sup>6</sup> Harewood (1968: 882) says that in the case of Haiti, "(t)he IPPF reported that while the government had announced plans in 1964 to absorb the FPA within the health services, little action had been reported by July 1967." After that date, there was some progress and the country started receiving strong support from USAID (Ward et al., 2015a).

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<sup>7</sup> "The traditional sources of opposition have considerably reduced their antagonism. Excellent examples are the attitude and action of the Roman Catholic church which, while retaining its opposition in principle to certain forms of birth control, has accepted the idea of planned and responsible parenthood, and is represented in the body responsible for organizing the national family planning program in the Dominican Republic, Trinidad and Tobago, and Curaçao" (Harewood, 1968: 892).

<sup>8</sup> See Weaver (1978: 431).

<sup>9</sup> Argentina and Uruguay were exceptions, having experienced their fertility transition much earlier, following the experience of Europe (Pantelides, 1996).

The onset of the fertility decline, and the increase in the use of contraceptives that made it possible, occurred in a context of profound social and economic transformation in the region (Guzman, 1996). Countries experienced remarkable social change, expressed in great improvements in education and social and geographic mobility. This was accompanied by the acceleration of urbanization levels,<sup>10</sup> which provided more opportunities to better access information and services.<sup>11</sup>

### The Introduction of the Population Policy Paradigm

The United Nations World Population Conference in Bucharest, held in 1974, was a crucial event that helped to bring a broader acceptance of family planning services, in spite of the fact that the Conference took place in what Carmen Miró called in 1977 “*a highly politicized atmosphere*” (Miró, 1977). Jason Finkle and Barbara Crane (1975) expressed well the environment surrounding countries’ expectations of the Conference as the “*dual ancestry*” of Bucharest. They stated that, on one hand, the more developed countries (United States, Western Europe, and some Asian countries) saw the Conference as

the main international mechanism to legitimate and expand the role of international bodies, such as the United Nations, to control what was considered excessive population growth. On the other side, the less developed countries, with important participation and leadership from some countries of Latin America, saw this Conference as another mechanism to negotiate a new international economic order more beneficial for less developed countries. The final document that emerged from Bucharest was the result of a middle ground between these two positions.<sup>12</sup>

But beyond the political considerations, two major breakthroughs were part of the agreement. The first was the explicit call to all countries to: “*Respect and ensure, regardless of their overall demographic goals, the right of persons to determine, in a free, informed and responsible manner, the number and spacing of their children*”<sup>13</sup> and expand the services of family planning (both services and information). For those countries that already had family planning programs, the Plan of Action recommended “. . . integrating and coordinating those services with health and other services . . . and including family planning services in their official health and social insurance systems” (United Nations, 1975: para. 30).

Although some groups considered the results of the 1974 Bucharest Conference as an agreement towards placing family planning behind any development initiative, the fact is that it created a new environment for family planning activities in Latin America and the Caribbean by providing countries with a very strong rationale and by supporting new data and research initiatives.

<sup>10</sup> Based on United Nations estimates, in 1960, half of the population of Latin America and the Caribbean (49.4%) was already living in urban areas and this figure increased to 65% by the end of the 1970s (United Nations, 2018). The same source shows that by 2020, the percentage of population living in urban areas in Asia only reached around the level of Latin America in 1960, while the African continent is expected to reach that value around 2033.

<sup>11</sup> It is clear that urbanization has undoubtedly had a major effect on fertility reduction in the Latin American region as well. Research into Brazil’s rapid fertility decline, for instance, suggests that urbanization was a major vehicle in promoting a variety of social changes that affect the fertility transition. It finds that urbanization not only has a direct impact on fertility behavior, but that it also has an important influence on its other major social and economic determinants. This would make the argument that the ongoing process of massive urbanization is one of the most important structural changes of this century (Martine, 2021).

<sup>12</sup> In spite of the political position of Latin America, it has also been recognized that “(a)lthough not all [Latin American] governments came to Bucharest explicitly supporting family planning and the use of contraceptives, all came with a least official tolerance towards family planning activities and most with publicly supported contraceptive programs” (Weaver, 1978: 435).

<sup>13</sup> It explicitly “. . . (r)ecommends that the couple and the individual should be allowed full freedom to choose in a responsible manner the number and spacing of their children. For the exercise of this basic human right of really being able to choose, it is necessary for States to respect these decisions by appropriate measures of assistance and information” (United Nations, 1975: 46).

The second major advance was the request to governments to develop and implement, when necessary<sup>14</sup> “... *population policies consistent with national values and goals and with internationally recognized principles* ...”. It was the first global call to governments to develop national population policies and create institutions that could lead to their implementation. Three years later, however, Carmen Miró (1977: 425) lamented that the “... *international community has failed both to make more than nominal progress toward achieving the fundamental goals of the Plan and to take advantage of its potential as a ‘policy instrument within the broad context of the internationally adopted strategies for national and international progress’.*” In spite of this, by 1975, 18 countries of Latin America had established government entities defined as responsible for population activities, some of them with explicit policies on fertility and population growth, and half of them had created a National Population Council, while all of them defined objectives for their population distribution and urbanization policies (CEPAL, 1999). All of these efforts followed in some way the example of Mexico.

### The Case of Mexico

As observed by Maria Eugenia Zavala de Cosío (1990), Mexico introduced, just before Bucharest 1974, a *General Population Law*, voted on December 11, 1973. On January 7, 1974, some reforms and additions were integrated to the *General Population Law* and published in the Official Gazette of the Federation, including the creation of the *Consejo Nacional de Población-CONAPO* (National Population Council) that was installed on March 27 of that year, as the national institution responsible for the demographic planning of

the country in terms of volume, structures, and spatial distribution. Four principles were established for the national population policy, indicating: (1) the need to conceive of this policy as part of the national development process; (2) the rights of parents to parenthood; (3) the duty of the State to provide information about family planning to ensure the freedom and equality of all individuals and families regarding their reproduction<sup>15</sup>; and (4) the protection of the family and the promotion of gender equity.

Having a demographic target of reducing the rate of growth and following the guidelines established in the new population policy, the government of Mexico established in 1977 the office of the *Coordinación del Programa Nacional de Planificación Familiar-CPNPF* (the Coordinating Office of the National Family Planning Program), and presented a six-year plan (1977–1982) to make family planning services available everywhere in the country using the infrastructure already available in the health sector. Working in combination with the private sector, including “... *the armed services, Mexico’s major nationalized industries ... and the two major private family planning associations (FEPAC, APROSAM)*” (Rodríguez-Barocio et al., 1980: 8), family planning services were included in all services provided by the three major health institutions.<sup>16</sup> By the end of 1978, it was estimated that more than 1.7 million active contraceptive users had joined the family planning programs supported by the government (19% of all 15–49-year-old married women in Mexico at that time; see Rodríguez-Barocio et al., 1980). During this period, in addition to the family planning component, CONAPO developed, in coordination with the National Family

<sup>14</sup> It says that “(c)ountries which consider that their present or expected rates of population growth hamper their goals of promoting human welfare are invited, if they have not yet done so, to consider adopting population policies, within the framework of socio-economic development, which are consistent with basic human rights and national goals and value” (United Nations, 1975: 9).

<sup>15</sup> This was a big change in its politics because until 1972, the government from Mexico had a “*strictly pronatalist population policy*” (Rodríguez-Barocio et al., 1980: 3).

<sup>16</sup> These institutions are: the *Secretaría de Salubridad y Asistencia (SSA)*—the Ministry of Health; the *Instituto Mexicano del Seguro Social (IMSS)*—the Mexican Social Security Institute; and the *Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE)*, which is the government Employees’ Institute for Social Security and Social Services.

Planning Coordinating Agency, a program on sexual education focused on adolescents. It also promoted the realization of several national surveys on fertility and contraception that showed the changes taking place in both areas (Ward et al., 2015b).

Two important changes to the original ideas happened later. First, CONAPO, Mexico's National Population Program, started in 1983 a decentralization process with the creation of the State Population Councils (Coespos) that helped CONAPO to keep alive the work on population policies in a very large and diverse country like Mexico (García Guerrero, 2014). The second change occurred in the components of the *General Population Law*. This law originally included articles related to interventions in the areas of fertility and family planning, population growth, urbanization and spatial distribution, and migration (both emigration and immigration). However, most of the articles related to the last three components were later taken out of the policy (Secretaría General Secretaría de Servicios Parlamentarios, 2018; Secretaría de Gobernación, 1974).

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### The 1980s and Early 1990s: A Lost Decade?

In spite of the serious economic difficulties that countries experienced in this decade, the 1980s was a time of continuity for national population policies and family planning programs in the region and the carry-over of previous trends towards an increase in the use of contraception and reduction of fertility. By 1980, the data showed that the transition to lower fertility was already well underway and the use of contraception in the region was widely accepted. By the end of the previous decade, there was already very good data available coming from the World Fertility Surveys (1970–1982) (Macura & Cleland, 1985), conducted in 62 countries of the world and in many Latin American countries.<sup>17</sup>

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<sup>17</sup> About 40% of the world's population participated in the first global initiative to collect data on fertility and family

The results from these surveys helped to confirm the trend to lower fertility initiated in the 1960s and consolidated in the 1970s.

Not all these changes can be fully attributed to a direct impact of the established public family planning programs (Mundigo, 1996). Actually, between 1977 and 1982, the author of this chapter found that in most countries of the region, the private sector was the main source of contraceptives in seven countries of Latin America and the Caribbean (Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, and Guatemala). Mexico was the only country that between 1978 and 1982 had a higher percentage of contraceptives being received by women from the national official program. That led Alex Mundigo (1996) to conclude that by 1990, with most countries having completed the first part of the fertility transition, family planning services were now being provided through a mix of the public and private sectors, including commercial sources such as pharmacies. At that moment, contraceptive methods were completely accepted and widely used.

By analyzing the economic growth during the 1980s and the resources received by the programs, it can be concluded that the fertility decline up to this point was not so much the result of economic development or of an increase in international aid (particularly from the United States), but it actually would have occurred in spite of the absence of both. First, for Latin America the 1980s, the Economic Commission for Latin America and the Caribbean (ECLAC) considered the 1980s as the 'Lost Decade' (*La Década Perdida*). During the first years, there was no economic growth and there was a continuous deterioration of the economic and social situation (CEPAL, 1996). Although not all countries were affected in the same way, during this period of structural adjustments, with reforms and modernization of the governments, social

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planning. From Latin America and the Caribbean, twelve countries participated (Mexico, Colombia, Costa Rica, Dominican Republic, Ecuador, Guyana, Haiti, Jamaica, Panama, Paraguay, Peru, Trinidad and Tobago, and Venezuela).



investments were reduced and this had negative social effects (CEPAL, 1999). However, there is no evidence that this crisis in all countries had a direct impact on the fertility and family planning trends already in place.

Furthermore, the 1980s were also a difficult decade regarding international support from the United States to developing countries' population programs, and particularly to countries of Latin America. This was a result of the policies issued by the government of Ronald Reagan during the International Population Conference in Mexico City in 1984 (United Nations, 1984), particularly the U.S. government's Mexico City Policy "... which required foreign nongovernmental organizations receiving USAID family planning assistance to certify that they would not perform or actively promote abortion as a method of family planning, even if such activities were conducted with non-U.S. funds" (Congressional Research Service, 2020: 1). Two years later, the government of Ronald Reagan withheld the contributions of the U.S. government to the United Nations Population Fund (UNFPA), with the rationale that UNFPA was funding population programs in China. UNFPA was accused of conducting or supporting forced abortions and involuntary sterilizations of women.<sup>18</sup>

Despite the restriction imposed by the Mexico City Policy, there are no clear indications that this policy had an important effect or changed the trajectory of fertility decline in most countries. Actually, Bertrand et al. (2015a, b), in their summary of family planning achievements in Latin America and the Caribbean during the last 50 years, stated that Latin America experienced

during the 1980s an increase in the utilization of long-acting and permanent contraceptive methods and an expansion in the total use of contraceptives in all countries of the region, thanks in part to the introduction of community-based distribution (CBD), firstly initiated in Colombia but followed afterwards by other countries. However, there is evidence that some countries, such as Costa Rica, were more affected than others by the changes in the U.S. administration's attitude towards family planning.

### The Case of Costa Rica

In the 1960s and 1970s, Costa Rica was considered the model of a very rapid fertility decline. Fertility fell from 6.5 children per woman to 3.7 between the beginning of the 1960s to the second half of the 1970s (Gendell, 1989). This has been attributed to the existence of a very strong family planning program that expanded services quickly, in spite of the fact that there was not (and there has never been) a national population policy in the country. However, from the second half of the 1970s until the mid-1980s, there was a fertility stall. This stall has been related to a decline in the government of Costa Rica's commitment to expand family planning services<sup>19</sup> and a decline of the international assistance to family planning since the late 1970s. This happened in the context of a less favorable external environment, due to the policy orientation of the Reagan administration (Holl et al., 1993) and the pressure the Costa Rican government received from the United States regarding the expected support from Costa Rica for the 'contras' fighting against the new revolutionary Sandinista government of Nicaragua, along with a period of economic and financial instability. It is interesting to note that

<sup>18</sup> These ups and downs of the "Mexico City Policy" have been directly linked to whichever party, Democrats or Republicans, wins the presidential election of the United States: "The [Reagan] policy was rescinded by President Bill Clinton and reinstated and expanded by President George W. Bush to include State Department activities. In January 2009, President Barack Obama rescinded the policy. It was reinstated and expanded by President Trump in January 2017" (Congressional Research Service, 2020: 1). In January 2021, President Biden has rescinded the Mexico City Policy.

<sup>19</sup> The government of Rodrigo Carazo, President of Costa Rica between 1978 and 1982, clearly stated that it would not support expanding family planning programs (Holl et al., 1993).

contraceptive prevalence by the mid-1980s was already high (about 70% of women between 15 and 44 years old) but these levels resulted from a change from less effective methods (rhythm and condoms) to more effective methods (pills, sterilization) (Oberle et al., 1988).

### The Emergence of a New Paradigm: Cairo 1994

In the 1990s, Latin American countries experienced better economic outcomes, with rates of growth much higher than those observed in the previous decade (CEPAL, 1999). At the same time, in the first quinquennium of this decade, Latin America and the Caribbean experienced a decline in external assistance received, in the context of a global decline in financial assistance to less developed countries (United Nations, 2020). From a demographic perspective, fertility continued declining, and by 1995, the total fertility rate for the region was 2.9 children per woman, and more than 70% of the countries had a total fertility rate below 3.5 children per woman.<sup>20</sup> That explains why during this decade the two most populous countries of the region (Brazil and Mexico) and several other countries (Colombia, Ecuador) graduated from USAID international assistance (Cromer et al., 2004).<sup>21</sup>

When the delegations met in Cairo in 1994 to participate in the United Nations International Conference on Population and Development (ICPD), the global context was very different from the mood that had prevailed a decade earlier at the International Population Conference in Mexico City. First, the concern over high global

population growth was still present in Cairo (although not necessarily because of Latin America), but it did not have the effect it had before in defining the agenda and the Conference's outcomes (although at that time Africa was experiencing its highest ever rate of population increase). Second, there was also an important change in this Conference in regard to participation, both in numbers and diversity. The number of participants substantially increased (11,000 participants) and the composition changed with respect to previous conferences: instead of mainly government officials and academics, Cairo featured extensive participation by non-governmental organizations (NGOs), international agencies, and citizen activists (Ashford, 2004). The ICPD culminated with an extensive document, the *ICPD Programme of Action on Population and Development*, that redefined the way countries should look at population issues.

In the Population Conference in Mexico City (1984), the final document had already emphasized two important concepts for what later became an integral part of the *ICPD Programme of Action on Population and Development*. These were: (1) the concept of rights; and (2) the concept of women's equality. But Mexico City 1984 had an explicit rationale for population policy, including in it some demographic targets, particularly regarding population growth and fertility. The *ICPD Programme of Action* defined a new paradigm based on two main concepts: reproductive health and reproductive rights. In Cairo, countries agreed to eliminate references in the Plan regarding the need for demographic targets in their national population programs.

The implications of this Conference were multiple. There were changes that affected the distribution of resources, especially the delimitation of family planning activities as part of a broader concept of reproductive health, which required new institutional arrangements to provide services. Although it included some chapters on broader population and development issues, these sections of the document were overshadowed by the new paradigm on reproductive health and rights. This generated some progress in Latin America but also brought some drawbacks.

<sup>20</sup> United Nations, 2019.

<sup>21</sup> After 2020, other countries joined the list of 'graduated' countries (Costa Rica, Dominican Republic, Ecuador, El Salvador, Jamaica, Mexico, Nicaragua, Panama, Paraguay, and Peru). Source: USAID Technical Issues Brief: Latin American and the Caribbean: see <https://www.usaid.gov/global-health/health-areas/family-planning/resources/issue-briefs-latin-america-caribbean>, accessed on October 8, 2021.

## The ICPD New Paradigm on Reproductive Health and Reproductive Rights

The ICPD had very positive effects for women in Latin America and the Caribbean because of the inclusion of a strong emphasis on reproductive health, which triggered some changes in institutions and financing. As high fertility, at least at the national level, was not an issue anymore in almost all countries, attention started to be placed on adolescent fertility and maternal mortality, two issues of extraordinary relevance in some of the countries of the region. Policy and programmatic attention started to move to these issues. In the ICPD+10 report from ECLAC (Wong & Perpetuo, 2011), it was reported that almost all countries of the region had initiatives (laws, policies, and programs) or institutions aimed at the reduction of adolescent pregnancy. The same emphasis was placed on the reduction of maternal mortality (*Ibid.*).

One of the main challenges for the early implementation of the *ICPD Programme of Action* was resources. Around ICPD and in the years that followed, there was a reduction of external resources, and particularly of resources for family planning. This situation was due to several factors. First, a decrease in external assistance to less developed countries. Second, the cost of the implementation of the *Programme of Action*, which sought a wide range of services to support reproductive and maternal health, was very high.<sup>22</sup> Third, the diversification of funds that resulted from the need to allocate resources for not only supporting family planning services, but also covering a full range of reproductive health services, divided the available funds among a host of competing government agencies. Lastly, the

<sup>22</sup> Jason Finkle and Alison McIntosh stated that “*In the aftermath of Cairo, the population movement finds itself in a quandary. Stated in the simplest terms, governments, intergovernmental bodies and non-governmental organizations have been committed to a greatly expanded mandate without assurances of increased resources. Even before the conference itself, participants in the ICPD process were aware that the proposed programs would be expensive*” (Finkle & McIntosh, 1996: 110).

most important factor was the increase in funding for supporting HIV/AIDS activities, which took precedence over other demographic and health issues in the 1990s and early 2000s, as shown in the yearly Report of The Secretary General to the United Nations Commission on Population and Development (United Nations, 2020).

## The Institutional Effects of the ICPD for Population Policies

At the same time, there was a trend of reduced relevance of the need for population policies and the institutions that were supposed to work on defining and implementing those policies. There were three main reasons for this. First, Latin American countries were more advanced than African and most Asian countries in their demographic transition and urbanization, so the foundations for some of these policies and institutions in Latin America eroded. Second, in the *ICPD Programme of Action* there were only few mentions of the term population policies and there was not even a definition of what they were supposed to include. Finally, most of the institutions that were originally created to develop population policies were not able to position themselves at the decision level needed to be sustainable and effective contributors to governments’ policies and programs. This explains why in the 1990s, and particularly in the second half of this decade, some of the entities created previously to deal with population and development issues ceased to exist.<sup>23</sup>

<sup>23</sup> An excellent evaluation conducted in 1999 by ECLAC (CEPAL, 1999) described what happened with population institutional arrangements in the region after ICPD. Ecuador is mentioned as one of the countries that eliminated the Population Unit established before the ICPD (three other countries did the same in this period). Since 1978, the National Development Council of Ecuador covered population issues. In 1982, a population unit was created within this Council. Between 1984 and 1992, this Unit then evolved to the level of Direction including a dozen of staff. But by mid-1990s, this Direction was reduced to only one person, who was then transferred to the General Direction of Social development without responsibility for population policies (CEPAL, 1999).

After ICPD, some countries established new institutional arrangements such as Panama, Nicaragua, Brazil (with the National Commission on Population and Development), and Jamaica (CEPAL, 1999). However, the impacts those new institutions have had has been very limited or meaningless. This explains why the ECLAC's evaluation of ICPD +5 reports that only a handful of countries in the region had at that time population policies or programs beyond the ones created around reproductive health services. Of 22 countries that responded to a survey conducted by UNFPA in 1998, only five declared that they had an explicit population policy; one of them was Mexico, whose policy included not only reproductive health but also internal migration and relationships between population and environment (CEPAL, 1999).

Why did that happen? The fact is that, from a broader population and development perspective, the concept of population policies was not so relevant in ICPD as it was in Bucharest in 1974 or in Mexico in 1984. In the ICPD, the emphasis was placed not on what interventions can be made to modify demographic outcomes, but on the less conflictive statement that in order to be effective, national socioeconomic policies, meaning development policies, must integrate population issues. Para. 3.5 makes explicit the need to integrate population issues into all policies and programs on sustainable development, and para. 3.16 states the need to achieve a balance between population dynamics and available resources, through sustainable patterns of production and consumption (United Nations, 1994).

Although this proposal is less politically sensitive, countries had difficulties, and not only in Latin America, in finding the space, rationale, and instruments to implement these recommendations. One of the reasons was because of the complexity of the concept of integrating population in national development strategies, which seems easy to understand but difficult to implement. That's why, in ECLAC's evaluation of what happened in ICPD+20 for the period 2009–2013, one reads that mainstreaming population in national development strategies and programs was still more of an illusion than a

reality (ECLAC, 2013a). In fact, during this period only Mexico, Uruguay, and Peru had formulated plans and programs or prepared documents on population policy issues. ECLAC's report showed a very disappointing summary of how far the region was from this expected integration<sup>24</sup> (see Box 10.1).

**Box 10.1: Mainstreaming Population Matters in Economic and Social Planning and in Poverty Reduction Efforts in Latin America and the Caribbean**

“... the general conclusion concerning progress with ICPD-PA in this area is fairly critical. In effect, the review period was marked by a weakening of the agencies responsible for population and development and of explicit population policies. While nearly all countries have an official agency for this issue, those agencies in many cases have few resources, little influence, and not much to show for their efforts. In other countries, the official entity was in virtual hibernation during the reference period: this is the case, for example, with Brazil and its National Commission on Population and Development (CNPD). In Paraguay, for example, a formal population policy exists but it has no funding and the entity responsible for implementing it, the Ministry of the Interior, has other priorities. In extreme cases, there is no official agency responsible for the issue or for monitoring ICPD-PA: this is true of Chile, for example, which nevertheless implemented various measures relating to ICPD-PA during the reference period. In the end, institutions in the area of population and development are generally weak, and (with the exceptions of Mexico and Uruguay, and perhaps Peru) those devoted to comprehensive population

(continued)

<sup>24</sup> That's why in the final outcome of the Conference, it was recognized that in spite of some advances towards integrating population issues into public policies and programs, many challenges still remain in their design, formulation, and implementation (ECLAC, 2013b).

**Box 10.1** (continued)

and development measures are virtually non-existent.

In terms of mainstreaming population and development issues, a functional option for the routine and regular incorporation of demographics in sector and inter-sector policies and management, there has again been no progress, largely because of the lack of appropriate institutions and a shortage of personnel equipped to integrate population factors into development policies and programmes; worse yet, during the reference period no proper training facilities emerged in this area” (ECLAC, 2013a: 13).

This was the context regarding population policies previous to the Montevideo Consensus. The situation regarding population policies in 2013 was not much better than the one described before on what happened in the first years after ICPD. But what took place during the discussions in Uruguay, and in the document that emerged, brought a new interpretation of ICPD that considered the social, cultural, and economic changes that occurred after ICPD.

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## The Montevideo Consensus: Going Beyond the ICPD

### The Montevideo Consensus: A New and Redefined Framework for Population and Development

During 4 days, in August 12–15, 2013, the countries of Latin America and the Caribbean met in Montevideo, Uruguay, invited by the government of Uruguay and the UN Economic Commission for Latin America and the Caribbean (ECLAC) to discuss the way forward of the *ICPD Programme of Action*, which was evaluated 20 years later. More than 800 participants were present, including representatives of governments, NGOs, and UN agencies.<sup>25</sup>

The final document from this Conference, called “The Montevideo Consensus,” can be considered as the most important contribution of the region to a new paradigm based on an amplification and rejuvenation of the *ICPD Programme of Action*. Some authors have considered it “...*exceptional in its vision, its commitment to the Cairo Programme of Action as well as forward-looking policies...* [that] ...*radically transformed the terms of the debate*”, as it not only addresses the need to protect and ensure the rights of different groups (adolescents, women, persons of diverse sexualities, and sex workers), particularly in the area of sexual and reproductive practices and autonomy, but also makes strong recommendations on how this can be accomplished considering the roots of gender, race, ethnicity, class, age, location, and other inequalities (Abracinskas et al., 2014: 1).

The Montevideo Consensus document presented a new and/or more advanced language in some areas. First, it introduced the concept of sexual rights and asked countries to “(p)romote policies that enable persons to exercise their sexual rights, which embrace the right to a safe and full sex life, as well as the right to take free, informed, voluntary and responsible decisions on their sexuality, sexual orientation and gender identity, without coercion, discrimination or violence” and encouraged countries to develop policies that eliminate discrimination based on sexual orientation and gender identity (ECLAC, 2013b: 21). Second, it requested a strengthening of the commitments of governments to fulfill the commitment to promote and ensure gender mainstreaming while considering other sources of inequalities such as race, ethnicity, age, social class, and disability status. Third, it brought back the issue of abortion to the main center of the

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<sup>25</sup> “Approximately 400 civil society representatives attended the conference and many governments had progressive civil society voices within their delegations ... The large presence and strong voices of youth, feminist, lesbian, gay, bisexual and trans activists (LGBT), Afro-Latino, indigenous and sex worker organizations have decidedly contributed to counter the pressures made by conservative governments, such as Guatemala, Honduras and Jamaica” (Abracinskas et al., 2014: 3).

discussion. It asked countries to provide good-quality and safe abortion services where abortion is legal or decriminalized and asked all countries to ponder the need to change their laws and regulations regarding the voluntary termination of pregnancy when the life and health of the women and adolescent girls is in danger, which will have a positive impact in their lives and will help prevent more abortions. Fourth, it emphasized the need for access to sexual education for adolescents and young people, asking countries to provide “*comprehensive, timely, good-quality sexual health and reproductive health programmes*” (ECLAC, 2013b: 17).

Regarding abortion and emergency contraception, the innovative language introduced in the Montevideo Consensus document had its roots in legislative changes (constitutional reforms, high court decisions, and new policies and programs) that, as signaled by Abracinkas et al. (2014), were already taking place in some of the countries of the region, such as Ecuador and Bolivia, Mexico, Uruguay, and Argentina. The same can be said about the expansion in services and coverage of adolescents’ health issues through policies and programs in Brazil, Chile, Ecuador, and Peru. In September 2021, the Mexico Supreme Court voted to decriminalize abortion, just like in Uruguay, which made Mexico one of the few countries, including Uruguay and Cuba, where abortion is not criminalized. But at the same time, 16 countries of the region – including, for example, Chile, El Salvador, Nicaragua, Dominican Republic, and Honduras – where abortion had been criminalized in all cases, even in cases of rape or to save the mother’s life, made reforms to their constitutions to allow certain exceptions. Regarding the recognition of LGBTQ+, there has also been an increased openness to recognize their rights as was the case in Ecuador, Argentina, Uruguay, Mexico, Brazil, and Colombia (Abracinkas et al., 2014).

In the broader area of population and development, the Montevideo Consensus considered, as had the ICPD, the need to mainstream population issues in national development strategies, adding policies in the area of sustainable development and land-use planning at national and local levels.

It also, again, encouraged countries to “*(b)uild and strengthen national and subnational public institutions with responsibility for population and development issue*” (ECLAC, 2013b: 15) without recommending any specific strategies on how to achieve this goal. It also included recommendations on the development of policies that take advantage of the demographic dividend, although this recommendation arrived late to the Latin American debate as most of the countries of the region have completed or are in the late stage of their demographic transition. It also recommended that international migration issues and migration regularization policies be integrated in the international and national agendas. An important component was the request to countries to design urban management plans and initiatives that can respond to the impact of natural disasters.

### **Some Achievements of the Montevideo Consensus**

In 2019, ECLAC (2019) conducted an evaluation of the achievements of the Montevideo Consensus in the region. First, it acknowledged that regarding the expected institutionalization of population and development issues in national governments, there was important progress, but it had been unequal. Incidentally, the same can be said regarding the role of civil society organizations. It also indicated that governments showed an increasing interest in demographic dynamics in their national reports, which now include topics such as age structure shifts, aging, migration (both internal and international), and urbanization. The document also showed important progress regarding universal access to reproductive health and reproductive rights, particularly in legal matters. The same can be said regarding progress achieved in approaching gender, ethnic origin, sexual orientation, age, and other social barriers to eliminate inequalities and discrimination.

One area that deserves more attention now is the impact of COVID-19, both its direct impact on demographic change, and its indirect effects on the implementation of each of the agreements

in the Montevideo Consensus. In response to the pandemic, resources have been shifted, institutions have been transformed, and it is not clear yet how other societal changes will be affected. This would be a major consideration to take into account in future evaluations of the Montevideo Consensus' implementation.

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### **From a Broader Population and Development Population Point of View: What's the Balance? Accomplishments and Missed Opportunities on Population Dynamics-Related Policies**

During the last 50–60 years, Latin America has experienced one of the biggest social and demographic transformations of its history: a substantial decline in fertility levels and a significant increase in life expectancies. These changes brought significant shifts in the age structure of the population, illustrated by a decrease in the population at younger ages and an increase at older ages. The old concerns about a young population that grows at very high rates are increasingly being replaced by the need to consider the challenges of an aging population.

### **The Shift in the Age Structure and Population Aging: A Mix of Successes and Missed Opportunities**

One of the consequences of this change is an initial reduction in the dependency ratio, due to a decrease of the young population while the older population is still not growing so fast. During this period, a window of opportunity is created and, by heavily investing in education and human capital, countries can reap the benefits of a demographic dividend. This process in the region is well described by Turra and Fernandes (2020).<sup>26</sup> So far, there is no evidence

that the countries of the region have benefited from this dividend in the same way as the Asian “tiger” countries (Bloom et al., 2003). Actually, it is considered that the difficulties of Latin American countries in providing high-quality education to all children would explain how ineffective they have been in harnessing the benefits of the early and rapid demographic transition occurring in the region (Turra & Fernandes, 2020).

A different scenario happened with population aging. The *ICPD Programme of Action* recommended a set of actions to deal with the increasing aging of the population. Countries of Latin America, because of their transitions, started showing, particularly around the start of this century, clear signs of an acceleration of population aging in most countries. But it was not necessarily the implementation of the *ICPD Programme of Action* that made change possible in the region. Actually, it was the Second World Assembly on Ageing that took place in April 2002 in Madrid under the umbrella of the United Nations and the government of Spain. In this Conference, countries adopted The Madrid International Plan of Action on Ageing and the Political Declaration to help countries address the key challenges of “building a society for all ages.”

Latin America acted quickly, and with the coordination of ECLAC and the participation of other international organizations (World Bank, UNFPA, ILO, and IADB), new instances of coordination between these organizations were created to help countries build the policies, laws, programs, and institutional frameworks to deal with this challenge.<sup>27</sup> The constituencies for this topic were different than those from ICPD, but countries who are members of the Ad-hoc committee on Population and Development (now named the Latin American and Caribbean

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paradigm based on what he called ‘a new population governance’ that framed the policies and the economic, social, and political parameters in order to boost human capital. See also Chap. 19: *Policies Needed to Capture Demographic Dividends* of this *Handbook* (Turbat, [this volume](#)).

<sup>26</sup> Francisco Alba (2014) considered that given the changes in the population age structures that were taking place in the region, there was a need to create a new

<sup>27</sup> See <https://www.cepal.org/en/eventos/conferencia-regional-intergubernamental-envejecimiento>, accessed on October 8, 2021.

Conference on Population and Development, the regional framework for the follow-up of the ICPD) agreed to include the follow-up of Madrid, which was a very positive move from the region to expand, with participation of those working on older persons institutions, the community working and supporting broader population and development initiatives.

The impacts of Madrid 2002 started being seen in different areas, through the creation or reinforcement of national institutions responsible for the issue of population aging. Before Madrid 2002, there were only a few institutions dealing with older people in several countries of Latin America and the Caribbean.<sup>28</sup> While in several countries some kinds of institutions were already present before Madrid 2002, in several others new institutions were created and the old ones made some adaptations to take into account the changes resulting from the new rights-based approach. At least fourteen countries now had an entity at the level of the Social Development Ministry or its equivalent (Huenchuan, 2016).

There are still challenges ahead regarding the institutional position that these entities would need in order to have the coverage and effectiveness required, but the changes towards considering population aging as a social and economic issue, and the situation of older persons as a central social, economic, and political concern, seem to be rooted already in most of governments' structures. Second, thanks to foundations created by the work of ECLAC and its close work with countries of the region, the Organization of the American States (OAS) approved on June 15, 2015 the Inter-American Convention on the Protection of the Human Rights of Older Persons, which became the first intergovernmental body to approve a legally binding instrument on aging (OAS, 2015). Third, there is now a majority of countries interested in considering the risks of population aging. In the Population Inquiry implemented by the

United Nations Population Division in 2015 (United Nations, 2016), 24 out of 33 countries of the region expressed their concerns about the rapid aging of their populations (United Nations, 2016).

In conclusion, mainstreaming aging as part of the national development strategies in Latin America has been more successful than other population-related initiatives. This happened probably because of the kind of constituencies that support these initiatives, the fact that it deals with a specific population group (older persons) with all the financial (social security, health, etc.) and familiar impacts that this process may have, and because of the fact that population aging is an '*in crescendo*' irreversible phenomenon that will be here for many decades ahead. In addition, a new chapter has now been opened with COVID-19 impacting older persons' morbidity and mortality.

### **Rapid Urbanization: How Political and Group Biases and Misconceptions Can Affect Good Policy Decisions**

Simultaneously with the fertility and mortality transitions, there was another fundamental shift in the spatial distribution of the population, expressed in a rapid increase of the population living in cities that made the region the most urbanized in the world. This process was mainly nurtured by an increase in migration from rural to urban areas, an increase in conurbations (big cities and metropolis absorbing small towns and rural areas in their vicinity), and later by the natural demographic growth of the cities.

Latin America's urban transition, for a variety of historical reasons, preceded that in Asia and Africa by several decades (Martine, 2021). According to the latest available data,<sup>29</sup> 80.7% of the region's population lives in areas defined as 'urban'. This is actually higher than the proportion in Europe (74.5%) and much higher than that in Asia (49.9%) or in Africa (40.4%). Though

<sup>28</sup> Sandra Huenchuan (2016) mentions that countries of the Caribbean (The Bahamas, Jamaica, and Saint Kitts and Nevis) were the pioneer in the creation of institutions dealing with the elderly in the 1960s and 1970s.

<sup>29</sup> United Nations (2018).



diverse by country in terms of the specific rates and timing of growth, as well as in structure and form, urbanization in the region has been both rapid and generalized (*Ibid.*).

It has been indicated (Martine, 2021) that the failure of the public sector to plan ahead for the accommodation of poor people resulted in the spontaneous occupation of inadequate terrain and produced cluttered and asymmetric settlements. This haphazard spatial organization and the nature of the terrain occupied by the informal settlements also made it doubly difficult for urban administrators to eventually incorporate them into cities, providing them with basic infrastructure and addressing their needs for transportation, housing, water, sanitation, electricity, health, and other basic services (Rodriguez & Martine, 2008; Martine & McGranahan, 2013). In this way, the bias against the negative consequences of rural-urban migration and urban concentration, which was already present in demographic studies, grew rapidly from then on. Furthermore, it clouded the perception that policies and programs to prepare for this surge in urban growth were critically needed. Such biases and the consequent lack of planning for urban growth then became major impediments to a fluid urban transition in the region. Although actual attempts to stem the flow of migrants to cities have generally been frustrated, resistance by governments and the public to ongoing urbanization trajectories has had lasting negative economic, social, environmental, and demographic implications (Martine & McGranahan, 2013). Now, with climate change already affecting most countries, the consequences of unregulated urban growth and poorly coordinated planning are particularly damaging, as shown by the increasing number of major 'natural' catastrophes, which are also becoming more severe (Martine, 2021).

There have been a few explicit local attempts in the region at barring migratory movements to the cities, but these attempts have had little effect. As stated by Martine (2021), before the great surge in urban growth, Brazil had effectively adopted policies to redistribute population, namely with respect to the settlement of its

agricultural frontiers, the erection of a new capital city in order to help integrate an enormous and sparsely-populated region, and the creation of regional super-intendencies to develop poorer regions. When patterns of urban growth were perceived as intolerable, several other de-concentration strategies were proposed and thereafter an ambitious program aimed at "controlling" migration in the early 1970s was designed. However, this program's elaborate research efforts only served to emphasize the complexity of the issues, as well as to highlight the innate rationality of migratory movements, given the country's specific social and economic framework. A national migration policy was eventually approved at the highest level, but remained totally dormant in practice.

In short, the potential advantages of a precocious urban transition in Latin America were partly squandered away due to deeply-rooted and unwarranted biases against urban growth. Although somewhat belatedly for the American region, the policy implications are clear and would be pertinent for the many ongoing urban transitions in Asia and Africa (UNFPA, 2007).

There was another missed opportunity of urbanization: the lack of serious consideration of the role urbanization would play in fertility decline. Martine (1996) described how the urbanization transition in Brazil not only started earlier than in most less developed countries but was also much faster, and was a process that catalyzed the role of other factors in the fertility transition, such as modernization, the role of social media, and the unintended consequences for fertility of policies designed in other areas (Faria, 1989; Faria & Potter, 1990, 1995).<sup>30</sup> Even if fertility ended up declining in both urban and rural areas, the process was slower in the latter, and eventually occurred some years later. Before 1960, Guzman (1994) found that in the 1940s and 1950s, fertility in urban areas in many Latin

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<sup>30</sup> Faria and others claimed that even if Brazil has never endorsed a national family planning policy, some of the government policies in the area of social and economic development had a direct or indirect effect on fertility, acting as 'implicit population policies' (Martine, 1996).

American countries was already lower than in rural areas, showing early signs of fertility control in urban settings. Because of the elitist character of urban dwellers and the marginalization of rural residents, rural resident fertility behavior was contained and non-regulated. Then economic growth, together with an increase in education opportunities, broke this barrier, increasing the migration to urban areas and therefore making both areas more linked than before.

### Is There a Future for Population Policies in the Region?

The *ICPD Programme of Action* discarded the idea that demographic targets should be part of a national population policy. In a rights-based framework, it was considered that the way to deal with population issues (with a focus on reproductive health) was through empowering women, girls, and couples and giving them the options for taking decisions and by providing services, particularly in the broader area of reproductive health, and especially to those more in need. No doubt, the ICPD has contributed great achievements in the area of reproductive health and rights in Latin America. Although major progress has been made in this area, especially in the legislative domain,<sup>31</sup> there are still gaps that are expressed by high adolescent fertility in many countries and incongruence between desired and achieved fertility (ECLAC, 2019). High adolescent fertility has an important impact on the possibilities for young women to attain a higher level of education, jeopardizing their possibilities to enter the job market successfully (ECLAC, 2019).

But the demographic context in the last 20 years, particularly in high- and middle-income countries (including most countries of Latin America) has been quite different from what occurred before Cairo 1994. As an effect of the fertility transition, there has been a trend to low

and very low fertility. By 2015–2020, the total fertility rate (TFR) was below replacement level (about 2.1 children per woman) in 19 countries of the region,<sup>32</sup> and eleven had TFRs below 1.9 children per woman. Among these countries are Cuba (1.62), Chile (1.65), Brazil (1.74), Costa Rica (1.76), and Colombia (1.82) (United Nations, 2019). The others are all from the Caribbean region (Saint Lucia, Barbados, Trinidad and Tobago, Bahamas, Curaçao, and Martinique). Many countries have expressed their concerns in the UN Population Inquiry about their level of fertility (United Nations, 2016). Out of 33 countries in the region included, three had fertility below replacement (Barbados, Chile, and Cuba) and expressed that they wanted to raise their fertility.<sup>33</sup>

How then can policymakers make compatible the desire for a demographic target (higher fertility) while respecting what was agreed in ICPD regarding the rights-based foundations of individual and couple decisions about reproduction? This is the conundrum that European and other low fertility countries are trying to face via their so-called ‘family policies’.<sup>34</sup> Although they greatly differ, they have in common the idea of creating better conditions for women and couples that make them more motivated to have (more) children. It has been shown (Sobotka et al., 2019) that the set of policies commonly put in place usually include at least comprehensive high-quality childcare provision (the most effective policy) and other measures such as well-paid parental leaves and flexible working hours for working parents. The same authors consider that one-time financial incentives, and subsidized and widely accessible provision of assisted

<sup>31</sup> ECLAC (2019) warns about the need to implement the legal frameworks that have been developed and assuring that this progress is not lost for political or cultural reasons.

<sup>32</sup> United Nations (2019).

<sup>33</sup> At the same time, eleven countries still wanted to reduce their fertility level, most of them (seven) were also interested in reducing their rate of population growth.

<sup>34</sup> Family policies are defined by the *International Encyclopedia of the Social & Behavioral Sciences* as the “...state policies oriented to the welfare of children and the support of family as an institution or way of life. Most widely, family policies concern themselves with demographic matters, the financial and other resources.”

reproduction, are less effective and can have only short-term effects.

This brings back the question about whether countries should again be considering interventions to affect their demographic variables. Wolfgang Lutz (2008) presents this question as a dilemma. He says that “*I had argued that – in analogy to the climate policy discussion – governments will have to choose whether they only want to focus on adaptation (taking the demographic trends as given and trying to adjust as well as possible to their inevitable consequences) or whether they want to decide on a mitigation strategy in which they attempt to influence the demographic trends themselves*”.<sup>35</sup> The concept of population policy that emerged before the ICPD included both ‘mitigation’ and ‘adaptation’, although the focus on mitigation was basically on family planning as a way to reduce fertility in order to reduce population growth. That is why Lutz proposes going beyond population size and age structure and replacing it with human capital as the main goal that public population-related policies should have (*Ibid.*), again integrating population with development in a broader view.

The fact is that, in spite of all the economic development we have had in the region, the original challenge to develop comprehensive population policies is still there. Yes, the new approach brought by the Montevideo Consensus offers an opportunity to design a more holistic view of key issues that deals with reproductive and sexual rights, with women’s equality, and with a focus on social, cultural, and ethnic inequalities. This is a major achievement. However, we are still, and not only in Latin America and the Caribbean, in a battle to make sense of what a comprehensive framework for population policies should be, to define which issues should be included in it, which part of the policies should focus on ‘mitigation’, and which should be on ‘adaptation’, to paraphrase Lutz. We also need to determine if there is one institutional arrangement that makes sense, or as likely not, how to best fit differing institutional frameworks to the needs of countries

in different stages of the demographic transition and at different levels of economic development. We still have the challenge to demonstrate that this search is not a chimera but the ultimate goal that will make Carmen Miró’s vision a reality.

## References

- Abracinskas, L., Corrêa, S., Galli, B., & Garita, A. (2014). The ‘unexpected’ Montevideo Consensus. *Global Public Health*, 9(6), 631–638.
- Alba, F. (2014). Sobre la gobernabilidad poblacional: apuntes complementarios a las ‘Reflexiones sobre población y desarrollo’. *Boletín Editorial, El Colegio de México*, 170, 15–18.
- Ashford, L. S. (2004). *What was Cairo? The promise and reality of ICPD*. Population Reference Bureau.
- Behm, H., & Guzman, J. M. (1979). El descenso de la fecundidad en Costa Rica y sus diferencias socioeconómicas 1960-1970. *Notas de Población*, 7(21), 9–69.
- Bertrand, J. T., Ward, V. M., & Santiso-Gálvez, R. (2015a). *Family planning in Latin America and the Caribbean: The achievements of 50 years*. MEASURE Evaluation.
- Bertrand, J. T., Santiso-Gálvez, R., & Ward, V. M. (2015b). *Family planning in Colombia. The achievements of 50 years*. USAID, MEASURE Evaluation.
- Bloom, D. E., Canning, D., & Sevilla, J. (2003). *The demographic dividend: A new perspective on the economic consequences of population change*. RAND Corporation.
- Bongaarts, J., Gragnolati, M., Ahmed, S. A., & Corker, J. (this volume). Chapter 5: Population, development, and policy. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- CEPAL. (1996). *América Latina y el Caribe quince años después: de la década perdida a la transformación económica, 1980–1995*. Fondo de Cultura Económica for Comisión Económica para América Latina y el Caribe (CEPAL).
- CEPAL. (1999). Comisión Económica para América Latina y el Caribe (CEPAL). In *Cinco años después del Cairo: América Latina y el Caribe: logros y desafíos en la ejecución del Programa de Acción de la Conferencia Internacional sobre la Población y el Desarrollo*.
- Congress on the State of the Union. (1966). *Annual message to the Congress on the State of the Union*. The American Presidency Project. Lyndon B. Johnson. 36th President of the United States: 1963–1969. See <https://www.presidency.ucsb.edu/node/236130>. Accessed on 29 Jan 2020.
- Congressional Research Service. (2020). *Abortion and family planning-related provisions in U.S. Foreign*

<sup>35</sup> Lutz (2008: 18).

- Assistance Law and Policy* (CRS report prepared for members and committees of congress). Congressional Research Service.
- Cromer, C., Pandit, T., Robertson, J., & Niewijk, A. (2004). *The family planning graduation experience: Lessons for the future*. LTG Associates, & Social & Scientific Systems, for The Population Technical Assistance Project (POPTECH).
- Donoso, S. E. (2007). Descenso de la natalidad en Chile: un problema país. *Revista Chilena de Obstetricia y Ginecología*, 72(2), 73–75.
- ECLAC. (2013a). *Implementation of the programme of action of the International Conference on Population and Development in Latin America and the Caribbean Review of the period 2009–2013 and lessons learned*. First Session of the Regional Conference on Population and development in Latin America and the Caribbean. Economic Commission for Latin America and the Caribbean.
- ECLAC. (2013b). *Montevideo consensus on population and development*. First session of the Regional Conference on Population and Development in Latin America and the Caribbean. Full integration of population dynamics into rights-based sustainable development with equality: Key to the Cairo Programme of Action beyond 2014. Montevideo, 12–15 August 2013. Economic Commission for Latin America and the Caribbean.
- ECLAC. (2019). *First regional report on the implementation of the Montevideo Consensus on population and development* (LC/CRPD.3/6). Economic Commission for Latin America and the Caribbean.
- Faria, V. E. (1989). Políticas de governo e regulação da fecundidade: consequências não antecipadas e efeitos perversos. *Ciências Sociais Hoje*, 5, 62–103. Anpocs.
- Faria, V. E., & Potter, J. E. (1990). *Development, government policy, and fertility regulation in Brazil* (Texas Population Research Center Paper No. 12.02). University of Texas at Austin, Texas Population Research Center.
- Faria, V. E., & Potter, J. E. (1995). *Television, telenovelas, and fertility change in Northeast Brazil* (Texas Population Research Center Paper No. 94-95-12). University of Texas at Austin, Texas Population Research Center.
- Felitti, K. (2012). Family planning in Argentina during the decades 1960 and 1970: An unusual case in Latin America? *Estudios demográficos urbanos*, 27(1), 153–188.
- Fernández, D. C., & Hernández, M. B. (2009). Contraception policies in Panama: Advances and setbacks. In S. Cavenaghi (Ed.), *Demographic transformations and inequalities in Latin America: Historical trends and recent patterns* (1st ed., pp. 333–338). Latin America Population Association (ALAP).
- Finkle, J. L., & Crane, B. B. (1975). The politics of Bucharest: Population, development, and the new international economic order. *Population and Development Review*, 1(1), 87–114.
- Finkle, J. L., & McIntosh, A. (1996). Cairo revisited: Some thoughts on the implications of the ICPD. *Health Transition Review*, 6(1), 110–113.
- García Guerrero, V. (2014). *Proyecciones y políticas de población en México*. CEDUA, El Colegio de México.
- Gendell, M. (1989). Stalls in the fertility decline in Costa Rica and South Korea. *International Family Planning Perspectives*, 15(1), 15–21.
- Guzman, J. M. (1994). The onset of fertility decline in Latin America. In T. Locoh & V. Hertrich (Eds.), *The onset of fertility transition in Sub-Saharan Africa* (pp. 43–68). Ordina Editions.
- Guzman, J. (1996). Introduction: Social change and fertility decline in Latin America. In J. M. Guzman, S. Singh, G. Rodriguez, & Pantelides (Eds.), *The fertility transition in Latin America* (pp. xii–xxx). International Union for the Scientific Study of Population.
- Harewood, J. (1968). Recent population trends and family planning activity in the Caribbean. *Demography*, 5(2), 874–893.
- Holl, K. D., Dally, G. C., & Ehrlich, P. R. (1993). The fertility plateau in Costa Rica: A review of causes and remedies. *Environmental Conservation*, 20(4), 317–323.
- Huenchuan, S. (Ed.). (2016). *Envejecimiento e institucionalidad pública en América Latina y el Caribe: Conceptos, metodologías y casos prácticos*. CEPAL.
- Lutz, W. (2008). What should be the goal of population policies? Focus on ‘Balanced Human Capital Development’. *Vienna Yearbook of Population Research*, 2008, 17–24.
- Macura, M., & Cleland, J. (1985). Reflections on the world fertility survey. In A. C. Atkinson & S. E. Fienberg (Eds.), *A Celebration of statistics. The ISI centenary volume* (pp. 409–436). Springer.
- Martine, G. (1996). Brazil’s fertility decline, 1965–95: A fresh look at key factors. *Population and Development Review*, 22(1), 47–75.
- Martine, G. (2021). *Urbanization processes and migration policies in Latin America*. Unpublished.
- Martine, G., & McGranahan, G. (2013). The legacy of inequality and negligence in Brazil’s unfinished urban transition: Lessons for other developing regions. *International Journal of Urban Sustainable Development*, 5(1), 7–24.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- Mayone Stycos, J. (1965). Opinions of Latin American intellectuals toward population and birth control. *The Annals of the American Academy of Political and Social Science*, 360(1), 11–26.
- Mayone Stycos, J. (1967). Politics and population control in Latin America. *World Politics*, 20(1), 66–82.
- Micklin, M. (1994). Population policies in the Caribbean: Present status and emerging issues. *Social and Economic Studies*, 43(2), 1–32.
- Miró, C. (1970). Política de población: ¿Qué? ¿Por qué? ¿Para qué? ¿Cómo? In M. A. Gandásogui, D. Castillo,

- & A. Carrera (Eds.), *Antología del pensamiento crítico panameño contemporáneo* (pp. 276–281). CLACSO.
- Miró, C. (1977). The world population plan of action: A political instrument whose potential has not been realized. *Population and Development Review*, 3(4), 421–442.
- Mundigo, A. (1996). The role of family planning programs in the fertility transition in Latin America. In J. M. Guzman, S. Singh, G. Rodriguez, & E. Pantelides (Eds.), *The fertility transition in Latin America* (pp. 192–212). International Union for the Scientific Study of Population.
- OAS. (2015). *Inter-American convention on protecting the human rights of older persons*. Organization of American States.
- Oberle, M. W., Sosa, D., Madrigal-Pana, J., Becker, S., Morris, L., & Rosero-Bixby, L. (1988). Contraceptive use and fertility in Costa Rica, 1986. *International Family Planning Perspectives*, 14(3), 103–108.
- Pantelides, E. (1996). A century and a quarter of fertility change in Argentina: 1869 to present. In J. M. Guzman, S. Singh, G. Rodriguez, & E. Pantelides (Eds.), *The fertility transition in Latin America* (pp. 345–358). International Union for the Scientific Study of Population.
- Paxman, J. M., Rizo, A., Brown, L., & Benson, J. (1993). The clandestine epidemic: The practice of unsafe abortion in Latin America. *Studies in Family Planning*, 24(4), 205–226.
- Rodriguez, J., & Martine, G. (2008). Urbanization in Latin America and the Caribbean: Experiences and lessons learned. In G. Martine, G. McGranahan, M. Montgomery, & R. Fernandez-Castilla (Eds.), *The new global frontier: Urbanization, poverty and environment in the 21st century* (pp. 353–367). Earthscan.
- Rodriguez-Barocio, R., Garcia-Nunez, J., Urbina-Fuentes, M., & Wulf, D. (1980). Fertility and family planning in Mexico. *International Family Planning Perspectives*, 6(1), 2–9.
- Rojas Mira, C. (1994). Historia de la política de planificación familiar en Chile: un caso paradigmático. *Debate Feminista*, 10, 185–214.
- Santiso-Gálvez, R., Ward, V. M., & Bertrand, J. T. (2015a). *Family planning in Dominican Republic. The achievements of 50 years*. USAID, MEASURE Evaluation.
- Santiso-Gálvez, R., Ward, V. M., & Bertrand, J. T. (2015b). *Family planning in Guatemala. The achievements of 50 years*. USAID, MEASURE Evaluation.
- Santiso-Gálvez, R., Ward, V. M., & Bertrand, J. T. (2015c). *Family planning in Nicaragua. The achievements of 50 years*. USAID, MEASURE Evaluation.
- Santiso-Gálvez, R., Ward, V. M., & Bertrand, J. T. (2015d). *Family planning in Paraguay. The achievements of 50 years*. USAID, MEASURE Evaluation.
- Secretaría de Gobernación. (1974). *Ley general de población*. Diario Oficial de la Federación.
- Secretaría General Secretaría de Servicios Parlamentarios. (2018). *Ley general de población ley general de población. Última Reforma DOF 12-07-2018*. Cámara de diputados del h. congreso de la unión.
- Simmons, A. B., & Cardona, R. (1974). Colombia: Stages of family planning adoption, 1964-1969. *Studies in Family Planning*, 5(2), 42–49.
- Simmons, A. B., Conning, A. M., & Villa, M. (1982). *El contexto social de cambio de la fecundidad en América Latina rural. Aspectos Metodológicos y Resultados Empíricos*. CELADE.
- Sobotka, T., Matysiak, A., & Brzozowska, Z. (2019). *Policy responses to low fertility: How effective are they?* (Working Paper Series No. 1). United Nations Population Fund (UNFPA).
- Turbat, V. (this volume). Chapter 19: Policies needed to capture demographic dividends. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Turra, C., & Fernandes, F. (2020). *Demographic transition: Opportunities and challenges to achieve the Sustainable Development Goals in Latin America and the Caribbean* (Project Documents, (LC/TS.2020/105)). Economic Commission for Latin America and the Caribbean (ECLAC).
- UNFPA. (2007). *State of world population 2007: Unleashing the potential of urban growth*. United Nations Population Fund (UNFPA).
- United Nations. (1975). *Report of the United Nations world population conference on population, 1974*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (1984). *Report of the international conference on population, Mexico 1984*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (1994). *Programme of action adopted at the international conference on population and development, Cairo, 5–13 September 1994*. United Nations, Department of Economic and Social Affairs, Population Division. See [https://www.unfpa.org/sites/default/files/pub-pdf/programme\\_of\\_action\\_Web%20ENGLISH.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/programme_of_action_Web%20ENGLISH.pdf). Accessed on 6 Jan 2022.
- United Nations. (2016). *World population policies database: 2015 revision*. United Nations. (Online database).
- United Nations. (2018). *World urbanization prospects, the 2018 revision*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2019). *World population prospects 2019*. United Nations, Department of Economic and Social Affairs, Population Division (custom data acquired via Website).
- United Nations. (2020). *Flow of financial resources for assisting in the further implementation of the programme of action of the international conference on population and development*. Commission on Population and Development. Fifty-third session,

- 30 March-3 April 2020. Report of the Secretary-General.
- USAID. (2016). *Partnership with Ecuador advances family planning*. USAID Ecuador Briefs.
- Ward, V. M., Santiso-Gálvez, R., & Bertrand, J. T. (2015a). *Family planning in Haiti. The achievements of 50 years*. USAID, MEASURE Evaluation.
- Ward, V. M., Santiso-Gálvez, R., & Bertrand, J. T. (2015b). *Family planning in Mexico. The achievements of 50 years*. USAID, MEASURE Evaluation.
- Weaver, J. L. (1978). The politics of Latin American family-planning policy. *The Journal of Developing Areas*, 12(4), 415–437.
- Wong, L., & Perpetuo, I. H. (2011). *La transición de la salud sexual y reproductiva en América Latina, 15 años después de El Cairo-1994*. CELADE-CEPAL.
- Zavala de Cosío, M. E. (1990). Políticas de población en México. *Revista Mexicana de Sociología*, 52(1), 15–32.



# Demographic Features in West Asian and North African Countries: The Impact of Population Policies

# 11

Mehtab S. Karim, Elena Ambrosetti, and Zahia Ouadah-Bedidi

## Introduction

The region of North Africa and West Asia<sup>1</sup> stretches from Morocco in the West to Iran in the East. One common factor in these countries is the predominance of Islam, which is followed by over 98% of the population in most countries, with the exception of Egypt and Lebanon where Muslims constitute 93% and 65% of the population, respectively. In the Persian Gulf countries,

<sup>1</sup> The World Bank labels these regions as Middle East and North Africa (MENA), which includes Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, the Palestinian Territories, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates (UAE), and Yemen. However, this chapter excludes Djibouti and includes Sudan and Turkey: the United Nations considers the former as a part of North Africa and the latter as part West Asia.

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between 82 and 91% of population is Muslim (Pew Research Center, 2011).

Based on comparative data from the 1970s, 1980s, and 1990s, a mixed picture of demographic transition, particularly related to fertility, was reported for the region. In one of the earliest articles about the region, Allman (1980: 277) observed, that “*while the fertility rates for the region generally remain very high, there have been important declines in Egypt, Turkey, Tunisia and Lebanon. Differential fertility patterns, based generally on urbanization, social class, income and levels of education had emerged in Algeria, Morocco, Jordan and Iran. These patterns may be forerunners in fertility decline as has been the case in other regions of the world.*”

On the contrary, Weeks (1988: 13–15) considered that fertility was still high in the region till the late 1980s and argued that as a group, Muslim-majority countries “*are still in the early phase of demographic transition . . . [and] “the single most remarkable demographic aspect of Islamic societies is the nearly universal high level of fertility.*”

However, Obermeyer (1992: 33) stressed that “*one of the problems with the Islamic explanation (of high fertility) is that it treats as monolithic a trait shared by close to a billion people worldwide, and that has adapted to, and been affected by, diverse regional contexts. The diversity in the doctrine and the cultural context of Islam calls into question the recourse to Islam as an explanation for demographic trends.*” Subsequently,

using data from the 1990s round of Demographic and Health Surveys from various Muslim-majority countries (including Egypt, Morocco, Jordan, and Turkey), Karim (1997) found a wide range of variations in fertility. They differed on average age at marriage for females as well as level of educational attainment. However, fertility differentials in these countries were reported to be mainly due to the different population policies adopted by each of these countries. Using UN data from the 1980s to the early 2000, Karim (2004), summed up that fertility in the region was high till the 1980s, but started declining significantly in most of these countries by the mid-1990s. Some countries (e.g., Tunisia, Iran, Lebanon, and Turkey) had already reached almost replacement fertility level between 2 and 2.4 per woman and some were catching up fast with total fertility rates (TFRs) between 2.5 and 2.8 per woman (e.g., Algeria, Morocco, Bahrain, Kuwait, and United Arab Emirates).

Today, countries in the region vary in population size from 1.7 million in Bahrain to 102 million in Egypt. Iran and Turkey are two other large countries, having population of about 84 million each. Other countries having mid-size population are Algeria and Sudan (about 44 million each), Iraq, Morocco, Saudi Arabia, and Yemen (ranging in population from 30 to 40 million) and Syria (17.5 million). Among smaller countries, Jordan, Tunisia, and United Arab Emirates (UAE) have population ranging between 10 and 12 million. The population of Qatar, Kuwait, Libya, Lebanon, Palestine, and Oman ranges between three and seven million.

## Population Growth and Demographic Transition

In 1970, the West Asian and North African region had an estimated population of 181 million, which has increased to 582 million by 2020 (United Nations, 2019). Thus, during the past 50 years, the region recorded a population increase of 221%. During the same period, the population of the more developed regions increased by 26%, while in the less developed

regions of the world, the increase was 142%. The percentage increase in population of the West Asia and North Africa region was only lower than the overall increase in Africa (269%) but substantially lower than the overall increase of 117% in other Asian countries. As shown in Table 11.1, West Asian countries experienced a slightly more rapid increase in their population (240%) than North African countries (198%).

Country-wise, the pace of population increase was quite different. In North Africa, only Sudan recorded a much higher growth rate than the average for the sub-region, mainly due to a persistently high rate of natural increase. Population growth in Morocco and Tunisia was about one-third lower than the average for North Africa. All the oil-rich Gulf countries of West Asia (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE) recorded very high population growth rates, where due to increased oil revenues after the mid-1970s, there was a large-scale labor migration of workers, mainly from South and South-East Asian countries as well as from within the region. Thus, each of the six Gulf countries has a large percentage of expatriate population, which has its own demographic implications. Besides, the rates of natural increase in all the countries during the 1970s was substantially high, and is still about 2% in Algeria and Egypt and about 2.5% in Sudan, Iraq, Palestine, and Yemen. On the contrary, several countries in the region have had very sharp declines in the rate of natural increase during the past 50 years, such as: Libya (1.4%), Kuwait (1.2%), and Jordan (1.8%), while the rate of natural increase is 0.8% in Qatar, 0.9% in UAE, and 1.1% in Tunisia and Turkey.

## Trends in Fertility

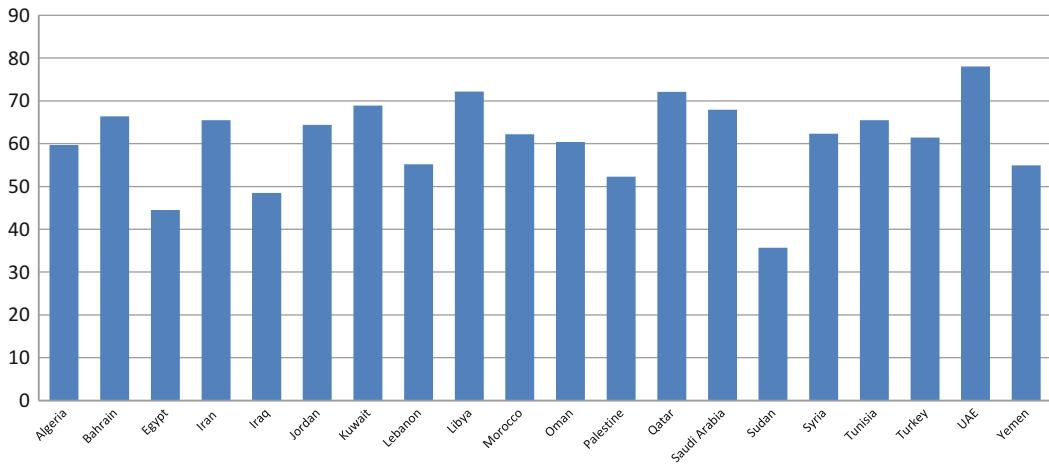
Over the past 50 years, most countries in the region have experienced substantial decline in fertility. However, as illustrated in Fig. 11.1, the pace has been slower in six countries including Sudan, and Egypt in North Africa, which experienced declines of 36 and 45%, respectively, and in Iraq, Lebanon, Palestine, and Yemen in West Asia, which recorded declines between 49 and



**Table 11.1** Trends in crude birth and death rates and annual rates of natural increase

Sub-region and country	Population (000)		Percent increase	Crude birth rate (per 1000)		Crude death rate (per 1000)		Rate of natural increase (annual in percent)	
	1970	2020		1970–1975	2015–2020	1970–1975	2015–2020	1970–1975	2015–2020
<b>North Africa</b>	<b>82,539</b>	<b>245,635</b>	<b>198</b>	<b>42.6</b>	<b>25.4</b>	<b>14.7</b>	<b>5.8</b>	<b>2.8</b>	<b>2.0</b>
Algeria	14,465	43,851	203	46.7	24.7	15.8	4.7	3.1	2.0
Egypt	34,514	102,334	196	40.5	26.5	15.3	5.8	2.5	2.1
Libya	2134	6,871	222	49.3	19.0	11.4	5.1	3.8	1.4
Morocco	16,005	36,911	131	40.9	19.1	13.6	5.1	2.7	1.4
Sudan	10,282	43,849	326	47.0	32.4	14.2	7.2	3.3	2.5
Tunisia	5,064	11,819	133	39.1	17.7	13.4	6.3	2.6	1.1
<b>West Asia</b>	<b>98,859</b>	<b>336,676</b>	<b>241</b>	<b>39.5</b>	<b>20.6</b>	<b>12.7</b>	<b>5.0</b>	<b>2.7</b>	<b>1.6</b>
Bahrain	213	1,702	700	35.2	14.2	6.2	2.4	2.9	1.2
Iran	28,514	83,993	195	41.3	19.1	14.3	4.9	2.7	1.4
Iraq	9,918	40,223	306	43.7	29.1	10.8	4.8	3.3	2.4
Jordan	1,721	10,203	493	48.8	22.0	9.3	3.9	4.0	1.8
Kuwait	744	4,271	474	46.8	14.4	5.7	2.7	4.1	1.2
Lebanon	2,297	6,825	197	31.4	17.6	7.7	4.3	2.4	1.3
Oman	724	5,107	605	48.0	19.6	14.9	2.4	3.3	1.7
Palestine	1.127	5,101	353	48.7	29.4	11.2	3.5	3.7	2.6
Qatar	110	2,881	2531	34.5	9.7	4.6	1.2	3.0	0.8
Saudi Arabia	5,836	34,814	496	46.4	18.0	13.2	3.5	3.3	1.5
Syria	6,351	17,501	176	46.3	24.0	9.8	5.5	3.6	1.8
Turkey	34,876	84,339	142	39.1	16.2	14.1	5.4	2.5	1.1
UAE	235	9,890	4117	33.3	10.4	6.1	1.5	2.7	0.9
Yemen	6,193	29,826	382	56.1	30.7	26.8	6.0	2.9	2.5

Source: United Nations (2019)



**Fig. 11.1** Percentage decline in fertility in West Asian and North African countries, 1970–2020. (Source: United Nations 2019)

55%. On the other hand, 14 countries which recorded substantial declines, include 60–62% declines in Algeria, Oman, Morocco, Turkey, and Syria; about 66% decline each in Bahrain, Iran, Jordan, and Tunisia, while Saudi Arabia, Kuwait, Libya, and UAE recorded between 68 and 78% decline.

Thus, by 2015–2020, six out of 20 countries have achieved TFR of more than 3 and 11 have achieved TFR of 2.4 or lower. As illustrated in Figs. 11.2a and 11.2b, each country experienced different trends in fertility decline. In 2015–2020, Sudan reports the highest TFR of 4.4 per woman, while in Algeria, Egypt, Palestine, Iraq, and Yemen, the TFR ranges between 3.1 and 3.8.

and in Syria, Jordan, and Oman it ranges between 2.8 and 2.9. Algeria and Egypt are the countries which have experienced a slight increase in TFR in recent years or where it has remained stagnant. On the other hand, several countries in the region have reached or are close to reaching replacement level fertility. The most dramatic decline in fertility was experienced during the past 50 years in Libya, from the highest TFR 8.1 in the region during 1970–1975 to a TFR of 2.3 during 2015–2020. Although oil-rich Persian Gulf countries are fairly conservative countries, they also report substantial declines in their TFR, which could be due to a large percentage of expatriate population. This is the case particularly

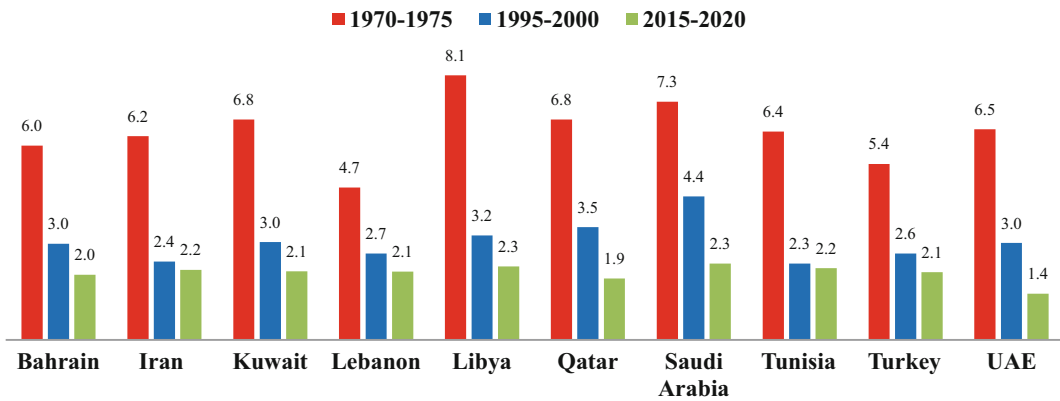


Fig. 11.2a Countries where TFR has declined to 2.3 or lower. (Source: United Nations, 2019)

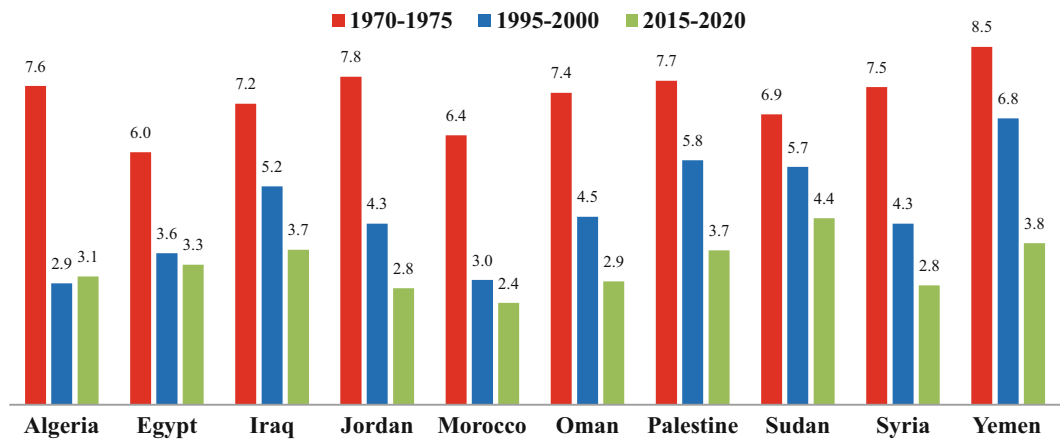


Fig. 11.2b Countries where TFR is still 2.4 or higher. (Source: United Nations, 2019)

in UAE and Qatar, where TFR declines of 72 and 78%, respectively, are reported, reaching TFR levels of 1.4 and 1.9, respectively.

### Trends in Infant Mortality and Life Expectancy at Birth

With the exception of Sudan and Yemen, all countries in the region have made great strides in reducing the infant mortality rate (IMR), resulting in substantial gains in life expectancy at birth (see Table 11.2). In this respect, the lead has been taken by the Gulf countries, all of which – apparently due to heavy investments in public health – have achieved IMR of six to seven per 1000 live births, an incredible achievement indeed. The three largest countries, Egypt, Iran, and Turkey, recorded substantial declines in IMR during the past 50 years. Thus, during 1970–1975

and 2015–2020, IMR was reduced by more than ten times in Egypt and Iran and by 16 times in Turkey, resulting in gains in life expectancy at birth of about 19 years in Egypt and 24 years in both Iran and Turkey.

### Age and Sex Distribution of the Population

Countries may differ substantially in their age and sex distribution as a result of the past demographic trends, including fertility, mortality, and migration. Since oil-rich countries in the Persian Gulf have encouraged immigration of workers, it has resulted in high concentration of population in the working age-group. Therefore, in this section, West Asian countries have been grouped into two sub-regions, Gulf countries and the remaining other eight countries.

**Table 11.2** Trends in infant mortality and life expectancy at birth

Sub-region and country	Infant mortality rate			Life expectancy at birth		
	1970–1975	1995–2000	2015–2020	1970–1975	1995–2000	2015–2020
<b>North Africa</b>						
Algeria	122.2	37.8	21.2	51.5	69.5	76.6
Egypt	165.4	36.7	15.6	53.0	68.0	71.7
Libya	89.9	26.5	10.5	58.4	70.4	72.7
Morocco	113.1	44.0	19.9	53.5	67.7	76.3
Sudan	93.3	70.1	42.9	53.1	57.6	65.0
Tunisia	139.8	28.7	12.7	54.1	72.4	76.4
<b>West Asia</b>						
Bahrain	47.4	12.3	6.0	65.4	73.9	77.1
Iran	123.7	31.9	12.8	52.7	69.1	76.4
Iraq	72.7	37.5	24.1	59.5	69.0	70.4
Jordan	65.7	25.6	14.6	61.9	71.3	74.3
Kuwait	45.0	11.7	7.1	68.8	72.5	75.3
Lebanon	41.7	18.8	9.4	66.7	73.3	78.8
Oman	108.9	21.7	7.3	52.3	70.9	77.5
Palestine	82.6	27.3	17.5	N.A.	69.8	73.7
Qatar	43.7	11.9	6.3	69.5	77.1	80.0
Saudi Arabia	105.1	21.7	6.3	55.5	71.9	74.9
Syria	71.0	21.3	15.5	60.8	72.5	71.3
Turkey	144.9	37.0	8.9	53.8	68.5	77.3
UAE	57.8	10.4	5.5	63.4	73.8	77.8
Yemen	198.5	74.9	43.2	39.6	59.5	66.0

Source: United Nations (2019)

N.A. = not available

## Age Distribution

As shown in Table 11.3, due to persistently high fertility in one country in North Africa (Sudan) and three in West Asia (Iraq, Palestine, and Yemen), between 38 and 40% of the population is below 15 years, and an additional 28–30% is in the age group 15–29. Similarly, since fertility has only declined recently in Algeria, Egypt, Jordan, and Syria, between 30 and 34% of the population is in the youngest age group. On the other hand, as Tunisia, Iran, Turkey, and Lebanon have experienced early declines in fertility, they have 25% or a lower percentage of population below 15 years. The six Gulf countries show an unusual age distribution where due to presence of large number of expatriate workers (discussed in section “Population growth in the Gulf countries: the role of migration”), between 50 and 60% of the population is in the working age group of 30–64. On the other hand, due to recent declines in

fertility, all the Gulf countries in general, and particularly in Bahrain, Qatar, and UEA, between 14% and 18% of the population is in the youngest age group.

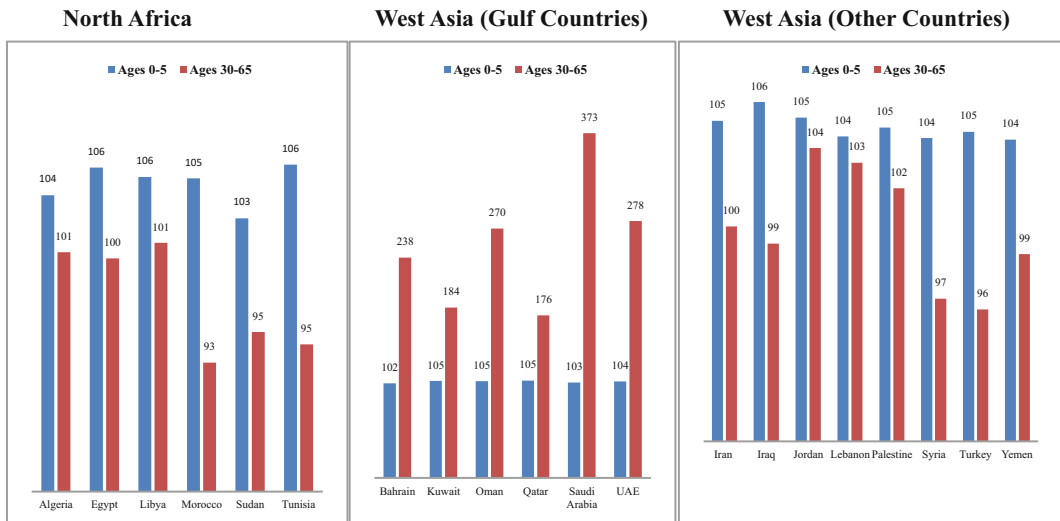
## Sex Ratios

As illustrated in Fig. 11.3, sex ratios in each country for the population below age 5 range between 104 and 106 males per 100 females, which is close to the natural distribution. The ratios remained at the same level until the early twenties. In the working age group (30–64), the ratios remained around 100 in Algeria, Egypt, Libya, Iran, Iraq, Jordan, Lebanon, Palestine, and Syria. However, since men migrate in search of employment to Europe from Morocco, Tunisia, and Turkey and to Gulf countries from Sudan and Yemen, sex ratios in working age group are lower in these countries. On the other hand, in the Gulf

**Table 11.3** Percentage distribution of the population in major age-groups and median age in 2020

Sub-region and country	Percent in age-group				Median age (years)
	Below 15 years	15–29 years	30–64 years	65 years and older	
<b>North Africa</b>					
Algeria	30.8	21.6	40.8	6.7	28.5
Egypt	33.9	24.6	36.1	5.3	24.6
Libya	27.8	24.1	43.6	4.5	28.8
Morocco	26.8	24.0	41.6	7.6	29.5
Sudan	39.8	28.3	28.2	3.7	19.7
Tunisia	24.3	21.3	45.6	8.9	32.8
<b>West Asia (Gulf countries)</b>					
Bahrain	18.3	23.2	55.8	2.7	32.5
Kuwait	21.5	15.7	59.8	3.0	36.8
Oman	22.5	25.5	49.5	2.5	36.8
Qatar	13.6	28.6	56.1	1.7	30.6
Saudi Arabia	24.7	21.8	50.1	3.5	32.3
UAE	14.8	25.7	58.3	1.3	32.6
<b>West Asia (other countries)</b>					
Iran	24.7	21.3	47.4	6.6	32.0
Iraq	37.7	28.1	30.7	3.4	21.0
Jordan	32.9	27.9	35.3	4.0	23.8
Lebanon	25.1	25.7	41.7	7.5	29.6
Palestine	38.4	29.1	29.4	3.2	20.8
Syria	30.8	26.7	37.6	4.9	25.6
Turkey	23.9	23.7	43.4	9.0	31.5
Yemen	38.8	30.0	28.3	2.9	20.2

Source: United Nations (2019)



**Fig. 11.3** Sex ratios for population below 15 and in age group 30–64, by sub-regions. (Source: United Nations, 2019)

countries, due to large-scale presence of expatriate workers in the working age group, sex ratios are substantially higher. Thus, in Bahrain, Oman, and UAE, there are between 238 and 278 men for every 100 women, whereas in Saudi Arabia, there are about 375 men for every 100 women.

### Population Pyramids

The population pyramid of a country, which takes into account the age (in 5-year age groups) and sex distribution, provides a history of the demographic transition as well as the recent history of international migration. Thus, a country’s population pyramid indicates the population trends in the past, the current age-sex distribution, and can also help in projecting how the population will increase or decrease in the future. As illustrated in Fig. 11.4, countries in each sub-region have different shapes of pyramids, depending on their experience with the demographic transition and their recent inflow or out-flow of migrants. In North Africa, Sudan which has yet to experience significant declines in mortality and fertility, has a typical pyramid, and it is similar in Yemen as well as in Palestine. Turkey and Lebanon are on the other extreme, having experienced constant

declines in mortality and fertility, and therefore getting closer to a having a triangular-shaped pyramid.

The most interesting shapes of pyramids are represented by all the Gulf countries, where there is a high percentage of males in working age groups, due to the presence of a large number of expatriate male workers and a smaller percentage of population in early ages. However, as these countries may need fewer expatriate workers, who are all temporary residents, the shapes of their pyramids may go through drastic changes in the future.

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### Population Growth in the Gulf Countries: The Role of Migration

In 1970, the total population of the six countries, known as the Persian Gulf, was 7.9 million, which by 2020 has increased to 58.7 million. Thus, during this period, the Gulf countries recorded about a 7.5-fold increase in their population, which is the highest increase for any sub-region in the world.

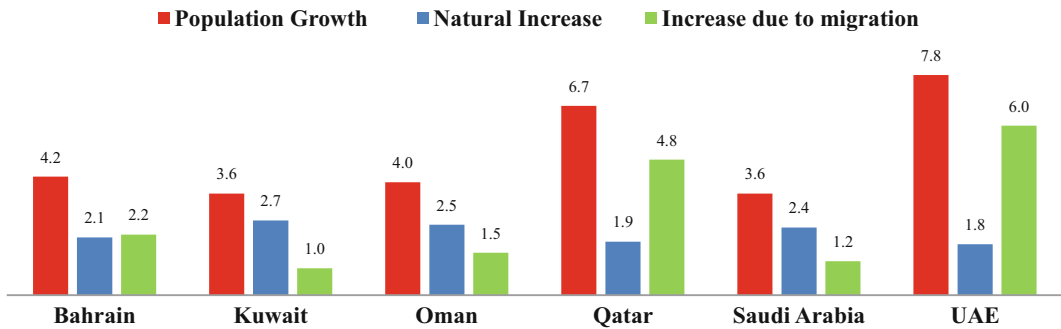
For example, during the same period, the other West Asian countries as well as North African countries, each recorded about a threefold



**Fig. 11.4** Population pyramids of North African and West Asian countries in 2020. (Source: United Nations, 2019)

increase in their population. Due to an unprecedented growth in the population of the six Gulf countries during the past 50 years, their share in

West Asia’s total population has more than doubled, from about 8% in 1970 to over 17% in 2020. This dramatic increase in the Gulf countries’



**Fig. 11.5** Average rates of population growth, natural increase and increase due to migration, in the Gulf countries during 1970–2020 (per annum). (Calculated from United Nations, 2019)

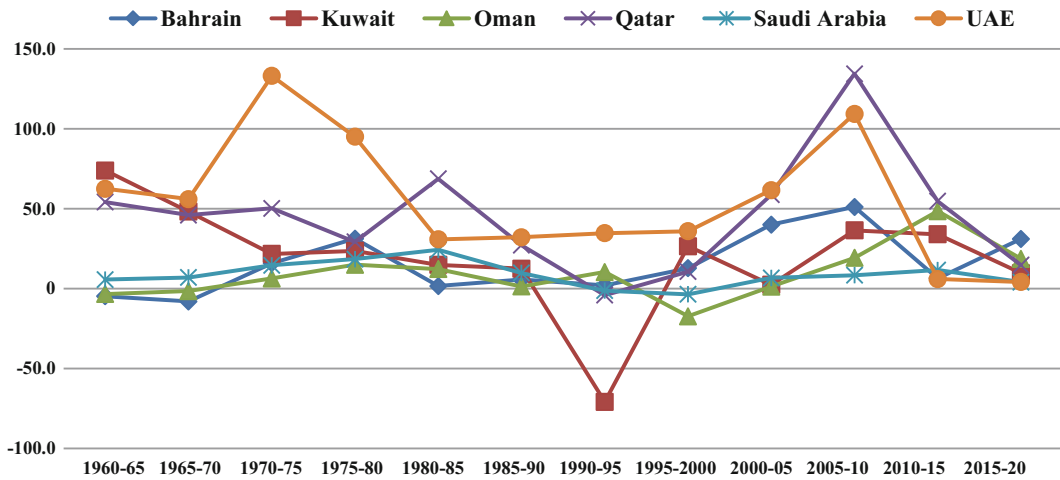
population has occurred due to the demand for expatriate labor as a consequence of increased oil revenues of these countries.

Interestingly, while the average annual rate of natural increase in the Gulf countries has been reduced substantially – from 3.2% during 1970–1975 to 1.2% during 2015–2020 – the declines in the annual rates of natural increase in the other two sub-regions have been slower. On the other hand, during the same period, on an average, the North African countries experienced a decline in the annual rates of natural increase from 2.8% to 2%, while the other West Asian countries experienced a decline from 3.1% to 1.9%. As illustrated in Fig. 11.5, during the 50-year period, the population growth rate per annum varied substantially within the Gulf countries.

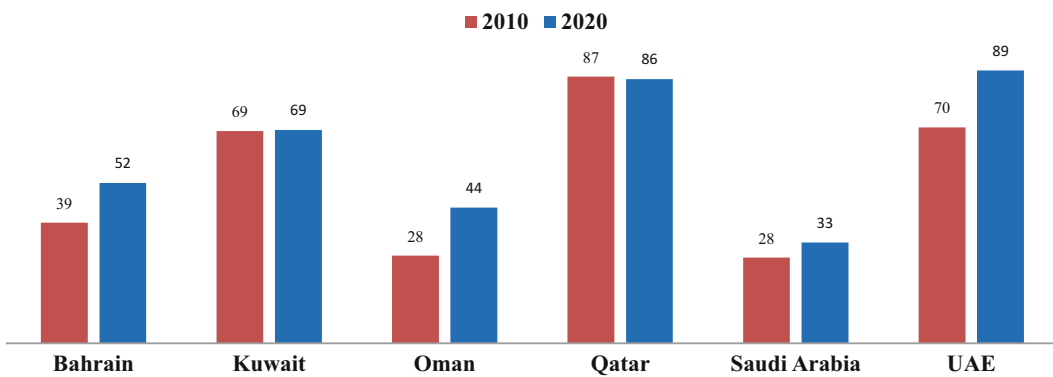
The population growth rate was about 4% per annum in both Bahrain and Oman and 3.6% in Kuwait and Saudi Arabia, while Qatar and UAE recorded growth rates of about 7 and 8% per annum, respectively. The phenomenal population growth rates due to migration of expatriate workers to the Gulf countries varied from country to country. For example, in Kuwait, Oman, and Saudi Arabia between one-fourth to one-third of the population growth was due to the migration of expatriate workers. In Bahrain, their contribution to the growth was about half, and in Qatar and UAE about three-fourth of the growth was due to migration.

The Gulf countries have had different trends of immigration since the 1960s (see Fig. 11.6). While in the 1960s, immigration rates per 1000 population were negligible in Bahrain, Saudi Arabia, and Oman, three countries, i.e., Kuwait, UAE, and Qatar had started receiving immigrants. UAE experienced a sudden surge in the immigration rate in the 1970s, but it declined in the 1980s. However, it retained one of the highest rates throughout the 1990s with another surge during 2000–2010 and a sudden decline during the past decade. In Qatar, the rate picked up in the 1980s, declined in the 1990s with a surge during 2005–2010, showing a declining trend since then. Kuwait, being an early recipient of immigrants, experienced declines in the rates throughout the 1970s and 1980s, and in fact due to the first Gulf war in the early 1990s, experienced substantially negative rate. However, since then there has been a surge.

Due to the constant migration of workers to the Gulf countries, as illustrated in Fig. 11.7, expatriates constitute today about half the population in these countries. UAE recorded a substantial increase in the percentage of expatriate population, which has increased from seven-tenth to nine-tenth of the country's population during the past decade, while Qatar has about 85% of its population consisting of expatriates followed by Kuwait at about 70%. Both Bahrain and Oman also recorded substantial increase in the population of expatriates. The largest



**Fig. 11.6** Trends in migration rates per 1000 population in Gulf countries, 1960–2020. (Source United Nations, 2019)



**Fig. 11.7** Percentages of expatriate population in the Gulf countries, 2010–2020. (Sources: For 2010: Abyad, 2018. For 2020: Labor Markets, Migration, and Population (GLMM) Programme. <https://gulfmigration.org/>)

concentration of expatriate population (about ten million) is in Saudi Arabia. However, because of the large population size of the country, expatriate’s share in the nation population has only slightly increased to about one-third.

### Population Programs and Policies

Three countries in the region, Iran, Egypt, and Tunisia, were among the few less developed countries that officially showed a concern about population growth and set up family planning programs in the late 1960s, primarily to lower

population growth as part of their national development plans. Algeria was one of the countries that did not see a need for organized family planning programs. However, in 1983 Algeria also adopted a population policy to promote family planning as part of its national development plan. It was noted by Omran and Roudi-Fahimi (1993: 6) that “Currently, no government in the region restricts married couples’ access to family planning information and services [and]... have adopted explicit policies to lower fertility and have implemented national information and education campaigns to encourage smaller families.” According the *World Population Policies* reports



of the UN (2010, 2020), most countries support the provision of family planning information and services, directly or indirectly, as part of their primary healthcare services. Since the last decade, almost all countries in the region consider, as part of their national strategies, population growth as too high, although some of the Gulf countries are satisfied with the growth. With the exception of Libya, Saudi Arabia, and UAE, all have been providing direct support for access to modern methods of contraception. However, three countries in the region – Egypt, Iran, and Tunisia – have taken a leadership role through staunch political support at the highest level, resulting in a rapid increase in contraceptive use, as illustrated in Fig. 11.8. In this Section, we discuss the population policies adopted and implemented by the three countries.

### Egypt

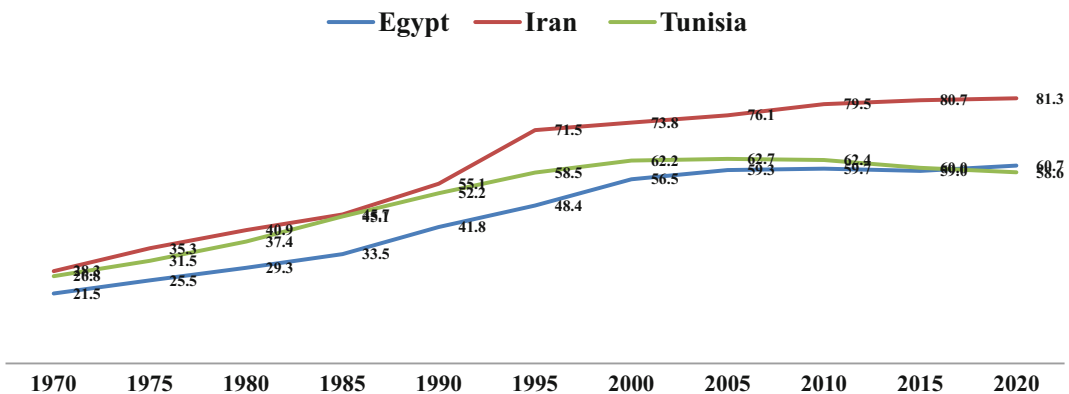
At the end of the nineteenth century, during the British occupation, Egypt had a population of 9.6 million. Between 1897 and 1927, according to estimates, it almost doubled in just 30 years, reaching 14.2 million (Cleland, 1936). During the first two decades of the twentieth century, population growth in the country was perceived as a “problem” by several intellectuals, statisticians, and university professors (Fargues, 1997). On the contrary, other researchers did not see

population growth as an obstacle to economic growth, thus arguing that the problem was not a lack of land but poor redistribution. This opinion was shared by the British, who did not reason in Malthusian terms and had pragmatically no interest in creating conflicts with a predominantly Muslim population. The landowners wanted a large and flourishing population that offered them enough available labor (Shanawany, 1973).

Egypt’s population policy process can be divided into five phases.

### Pre-1960s: The Development Strategy

In 1937, the Egyptian Medical Association organized a Population Conference that addressed the need for national intervention to control population growth. Religious authorities also pronounced themselves on the legitimacy of family planning. Shanawany (1973) reports two opinions of the time. The first, which dates back to April 1936, was given by a professor of Islamic Sharia, Sheikh Ahmed Ibrahim. The law professor affirmed the legality of the practice of withdrawal in the Muslim religion. A year later, in 1937, Sheikh Abdel Maguid Selim, who later became the Grand Imam of Al-Azhar Mosque (the largest Muslim religious authority in Egypt), also gave a favorable opinion (*fatwa*) on the legitimacy of the practice of withdrawal as a form of contraception in Islam. However, it



**Fig. 11.8** Trends in contraceptive prevalence rates (all methods) in Egypt, Iran and Tunisia, 1970–2020. (Source: United Nations, 2021)

was not until 1953 that Egyptian religious authorities formalized their position on the issue. At that time, Al-Azhar's was officially opposed to all forms of birth limitation, for essentially political reasons, since in their view it was a matter of strengthening the Muslim nation against British domination. No population policy was undertaken during this period, with the exception of the creation of the Peasant Affairs Department, transformed into the Ministry of Social Affairs in 1939, which included population issues among its responsibilities. At that time non-governmental organizations and intellectuals took into account the alarmist reflections of researchers and proposed agrarian reforms. In the 1930s, Mohamed Razzak, a medical doctor, was among the precursors in the experimentation of birth control techniques by testing intrauterine devices.

In 1945, the Maadi Child Welfare Society began offering services for contraception and infertility on an experimental basis. These isolated experiments, however, reflected more a scientific interest in medical circles than a real policy of disseminating contraceptive methods (Shanawany, 1973). Nonetheless, the idea of birth control was gaining ground.

As Egypt's first president, Mohamed Naguib placed the welfare and prosperity of the Egyptian people at the center of his concerns, aware that the population was suffering from a lack of resources due to delayed industrial and agricultural development. Naguib believed that the socioeconomic development of the country, which also required an improvement in rural living conditions, would be sufficient to control population growth. He did not envisage birth control, which was difficult to implement because of the opposition of Christian and Muslim religious authorities (Shanawany, 1973).

In 1953, Abbas Ammar, then Minister of Social Affairs, wrote a memorandum to the Permanent Council of Public Welfare Services in which he talked about the dangers of population growth and subsequently, the National Commission for Population Affairs was created (Shanawany, 1973).

Thus, the modern debate on population was born. On the one hand, intellectuals and

politicians shared the developmentalist idea that equitable socioeconomic development would lead to a decrease in population growth over time. On the other hand, neo-Malthusians were in favor of immediate action to lower the birth rate in order to facilitate socioeconomic development (Ibrahim & Ibrahim, 1998; Fargues, 1997).

In 1954, Gamal Abdel Nasser became the second president of the Republic and opened a new era in Egyptian history. He applied an 'original' form of socialism, including considerable state control in all areas and the idea of a more equitable state in which distinctions between social classes were abolished. An intensive policy of nationalization was carried out, accompanied by a policy of major public works and a new agrarian reform that limited land ownership to 200 *feddans* (4200 m<sup>2</sup>). At the social level, reforms affected education, which became free and accessible to everyone; a social security system was created as well as was established a rent control system. The state introduced subsidies on several goods such as flour, kerosene, sugar, lentils, rice, and oil, with the aim of keeping the support of the poorer classes.

The question of the Egyptian population and of its low standard of living was also central for President Nasser. However, while he was pessimistic about the situation, he did not advocate birth control. Until the early 1960s, his position was in line with that of his predecessor Naguib, namely that any change had to come through economic development, including economic planning and state intervention in all sectors, and the need for industrialization and mass schooling. In 1957, Abbas Ammar renewed his remarks on the need for a family planning policy, although the need for a birth control policy was not recognized, and Nasser's position on the subject was even considered equivocal by some who suspected him of wanting to let the Egyptian population grow in order to give the country greater weight within the Arab world (Ibrahim & Ibrahim, 1998).

At the same time, the work of NGOs continued, and in 1955, eight experimental clinics were opened to provide family planning services. However, "*the approach of this program was*

*hesitant, as it provided both advice on birth control and infertility treatment*" (Shanawany, 1973: 200). In addition, it was limited to urban areas and to women with more than three children whose economic or medical situation warranted contraception, with the agreement of their spouses.

The nationalization of the Suez Canal in 1956 led to a serious political crisis between Egypt and Western countries, which had also economic repercussions. The country, isolated by the British embargo, reacted by strengthening its policy of nationalization. The state became the largest employer in the country. Internationally, Nasser strengthened his position within the Arab countries and gave impetus to the movement of non-aligned countries (Belgrade Conference, 1961), alongside India, Yugoslavia, and Cambodia to counter U.-S. power. Egypt strengthened its ties with the Soviet Union, which gave it political and economic support until the early 1970s.

### **The 1960s: Implementation of the First Family Planning Program**

As a result of this crisis, the control of the state in all sectors was strengthened, Nasser's policy was affirmed in a centralized power and socialism was rooted in Islam. His program was defined in 1962 through the National Charter, which also set out his positions on population issues (Shanawany, 1973). It clearly stated that population growth constituted an obstacle to the country's development and advocated recourse to family planning. Starting in 1962, the country officially adopted a birth control policy. Although the government did not initially devote many resources to the implementation of this policy, the problem of population growth became between 1962 and 1964 the focus of parliamentary debates, medical research professionals, and the media. Throughout the country, family planning became a highly popular subject: moderate religious authorities also favored contraception for spacing but did not recognize birth control policies aimed at the whole population (Shanawany, 1973). Despite this formal opposition, family planning services were made available during this period: clinics

offering modern contraceptive services and methods such as the pill and intrauterine devices were increasingly available in the country.

In 1965, the Supreme National Council for Family Planning was created, responsible for birth control policies within the Egyptian government and chaired by the Prime Minister. The implementation of these policies has been accompanied since 1976 by the creation of the Center for Information, Education, and Communication within the State Information System (SIS). It is responsible for informing citizens about contraceptive methods and encouraging them to have smaller families (Wisensale & Khodair, 1998). In 1965, the first National Family Planning Program was launched and the government declared the goal of lowering the crude birth rate by one per thousand per year. In 1966, it released one million Egyptian pounds for the government's family planning program (Shanawany, 1973) and developed family planning services under the aegis of the Ministry of Health, complementing the actions carried out by NGOs. The training of medical and paramedical staff and the production and distribution of contraceptives were among the first measures taken. However, this package was temporarily eclipsed due to the Six-Day War in 1967. Israel's occupation of Sinai and Gaza shook the regime but did not affect Nasser's strong popularity in the country. In March 1968, the government launched the Family Planning Week to raise awareness among Egyptian citizens (Shanawany, 1973). Several politicians spoke out in favor of birth control. International organizations, including the UN, were called upon by the Egyptian government to evaluate the impact of the programs already implemented.

The first National Family Planning Program, whose results were well below expectations, was the subject of criticism. The initial enthusiasm of the program's initiators obviously did not meet the enthusiasm of the public, and there were very few contraceptive users (Shanawany, 1973). In 1960, the contraceptive prevalence rate in Egypt was about 5% among married women and the TFR was 6.6 children per woman.

The family planning program implemented in 1965 had a modest impact, and contraceptive use

increased to about 10% among married women in 1970 and the TFR was reduced to 5.6 children per woman. The program was widely criticized nationally by the press and politicians, but also abroad. The government did not allocate sufficient resources, the program's leaders lacked experience, the staff were not sufficiently qualified, and the strategy was not clearly defined at the policy level. Despite very favorable official rhetoric, implementation was never a priority on the government's agenda (Robinson & El-Zanaty, 2007). Nasser's regime came to a sudden end with his death in September 1970, when the population debate divided proponents of family planning with those who advocated an alternative approach encompassing population and development issues.

### **The 1970s: Family Planning and Economic Development**

The presidency of Anwar Sadat, Nasser's successor, was characterized by the end of the socialist era and by an opening of the market to Western countries. However, the first years of his presidential mandate were marked by the crisis of 1973 and the Yom Kippur War against Israel. This episode, however, opened the way to possible negotiations on a military disengagement from the Arab-Israeli conflict and led to the signing of the Camp David peace accords in 1978.

The policy of economic openness (*Infitah* in Arabic) was officially launched in Egypt in 1974. Government control over the economy became weaker and private investment was encouraged. However, the economic system established by Nasser was very difficult to challenge and the state continued to play a very important role in the Egyptian economy. In fact, the state's support introduced by Nasser remained indispensable to the country's poorest sections of the population. While the government's policy of openness encouraged the emergence of a richer middle class, it did not prevent the maintenance of social inequalities and disadvantaged the poorest segments of the population.

Demographically, Sadat's position was inspired by the same concerns that had characterized Nasser's policy in the 1960s. Shanawany (1973) cites a statement by the new president in which he stressed the importance of combating illiteracy and developing family planning. According to the same source, the Prime Minister, Mahmoud Fawzy, talked repeatedly about the population problem as one of the country's priorities. At the very beginning of his mandate, Sadat opted for an approach linking population and development issues and temporarily abandoned family planning. At the same time, the opening of borders was one of the most important demographic changes of this period, allowing many Egyptians to emigrate in search of work. Emigration was officially authorized in 1971 and the procedures for leaving the country were simplified. In 1971, the government enacted Law 73, which allowed public sector and government employees to resume their jobs after resigning for 1 year; finally, in 1974 the requirement of an exit visa was also abolished. The opening of the borders may have eased the pressure on the labor market.

A new population policy was implemented as part of a 10-year plan (1973–1982). Inspired by the 1974 World Population Conference in Bucharest, Egypt's new action plan emphasized the importance of a family planning policy in the country's economic development. More generally, the major orientations of this 10-year plan were aimed at improving the country's economic situation and more specifically at developing industry and mechanizing agriculture, raising living standards, improving the education system, reducing infant mortality, and revising family planning programs.

Largely financed by the World Bank, UNFPA, USAID, the German agency GTZ, the Danish government, and other international donors, this plan was a considerable step forward, but lacked quantifiable objectives and adequate resources for the task (Ibrahim & Ibrahim, 1998). Thanks to the availability of national contraceptive and fertility surveys, it is possible to monitor the outcome of the 10-year plan. The first national prevalence survey in 1975 reported a contraceptive

prevalence rate of 26%. The prevalence rate leveled off – and even fell slightly – during the period of the Population and Development Program, reaching 24% by 1980, while the TFR decreased slowly reaching 5.3 children per woman in the same year (Ambrosetti, 2011).

### **1981–2011: Thirty Years of the Mubarak Era**

From a strategic point of view, the Egyptian government population policy was initially oriented toward a comprehensive type of development, of which family planning was only one part, a position that was maintained until the early 1980s. Afterward, the dependence on international aid forced the government to reorient its policy towards an approach centered on the distribution of contraceptive methods (Ali, 2002).

From that time onwards, a new family planning policy that also encompassed development goals – including reducing infant mortality and raising education levels – was launched, with the aim of reducing the birth rate to 20 per thousand by the year 2000. In addition, development aid agencies, led by the U.S., criticized the ineffectiveness of integrated development programs and put strong pressure on the Egyptian government, even threatening to stop financial aid in order to redirect policy toward a more direct fertility control program.

The contract with USAID was finally renewed for 1983. USAID's insistence stemmed from the results of the major surveys, according to which, despite a decline in the birth rate and a significant increase in contraceptive use, population growth was still high and there were still too many women not using family planning methods. Therefore, population control and the distribution of contraceptive methods seemed necessary, because a high growth rate could lead to higher unemployment, accelerated loss of agricultural land, increasing urbanization, and reduced investment in education.

At the institutional level, NGOs played a very important role in family planning policies and their adoption. Indeed, these organizations

implemented the first interventions in terms of the distribution of services related to contraceptive practice as well as the opening of family planning clinics and dispensaries (Ibrahim, 1995). According to Ali (2002: 39), the role of international donors has been fundamental to changes in family planning policies in Egypt, and *“the previous emphasis on structural development and social equity has been replaced by a new policy based on behavior change and wider choices of contraceptive methods.”*

In 1980, the government opted for a ‘National Population Strategy, Human Resource Development and Family Planning Program’. For the first time, a plan was put in place with clear objectives, for instance the reduction of the birth rate to 20 per thousand by the year 2000 (i.e., a decrease of one per thousand). In fact, this program included many of the recommendations made by USAID on family planning policies and, in particular, on the population and development approach (Robinson & El-Zanaty, 2007). On October 6, 1981, the assassination of Sadat by an army soldier, an Islamist militant, tragically ended his presidency.

Hosni Mubarak, already Egyptian vice-president since 1975, succeeded Sadat and stayed in power till 2011. With respect to international politics, Mubarak re-established contacts with the Arab world, while maintaining the Camp David agreements. Mubarak continued the reforms undertaken by Sadat and began, from 1991, a program of economic reforms designed to reduce the weight of the public sector and expand the private sector. From the point of view of population policies, Mubarak followed the path undertaken by Sadat. In 1984, the first National Population Conference was held and a year later, Mubarak presided the first National Population Council.

In 1986, the third National Population Plan was put in place for the first time as part of the 5-year National Plan, which allowed for a parliamentary debate on the Plan and on the budgetary resources devoted to population. The experience acquired during the two previous plans benefited this new 5-year Plan, which set very specific objectives in line with the themes that were at

the heart of the international debates of the time: universal education, empowerment, the question of the environment, etc. According to Robinson and El-Zanaty (2007), the period 1985–1995 was fundamental to the success of Egypt’s family planning program.

The creation of the National Population Council, a better coordination and leadership mechanism of the program at the institutional level, along with stronger policy advocacy, the improvement in the quality of services, the evaluation of the program by successive DHS surveys, increasing USAID funding, and the expansion of contraceptive method choices were all fundamental steps for the reduction of the birth rate. By the mid-1980s, the contraceptive prevalence rate reached 37.8% in the first DHS (1988) and 47.1% in the second DHS (1992).

In 1993, the creation of the Ministry of State for Population and Family Welfare symbolized the government’s concern for population issues. In 1996, this Ministry was integrated into a new Ministry of Health and Population. Population became a priority for the Egyptian government. Mubarak believed that it was not sufficient to implement economic reforms to curb population growth, but there was a need for specific policies within the state and its institutions.

In the mid-1990s, Egypt’s total population was 61 million and the total fertility rate was about 3.6 per woman. In September 1994, UNFPA organized the International Conference on Population and Development (ICPD) in Cairo, which marked a milestone. Henceforth, population and development became a part of an integrated approach. The following year, the Egyptian government applied this strategy in its program and set objectives for the next 20 years.

As USAID funds for Asia and Near East were redirected to Afghanistan starting from 2002 onward, Egypt’s family planning budget was cut down by almost 50% during 2002–2007. As early as 2002, USAID and the Egyptian Ministry of Health and Population negotiated a letter of agreement to prepare USAID withdrawal in providing contraceptives from 2007 onward, because Egypt was at that time among USAID Global Health countries in the process of

graduating,<sup>2</sup> i.e., not receiving USAID support for technical assistance and funding for reproductive health/family planning programs during the period 2002–2011.

As a consequence, USAID planned for withdrawal from the procurement of contraceptives by 2007 and from the health and population sector by 2011. In 2007, direct USAID funding to the national family planning program ceased. At that time, the contraceptive prevalence rate had increased to 60% among married women and the total fertility rate was three children per woman.

On June 9, 2008, Mubarak inaugurated the Second National Population Conference in Cairo, where he spoke of population as a ‘national priority’. Population growth, he said, “[...] challenges our efforts to provide more and better-quality services, create job opportunities and curb unemployment ... and even goes far beyond to pose a threat to Egypt’s social stability and national security.” He called for a “[...] national campaign to address the population issue with all its dimensions and levels; a nationwide campaign, where the state as well as the private sector and civil society institutions participate.” He stated that this nationwide campaign should seek to reduce the population rate, to disseminate awareness of the small-family concept, and halt the current race between economic growth and population (President Hosni Mubarak on Egypt’s Population, 2008: 584).

After the withdrawal of USAID, most of the FP projects were endorsed by the Egyptian Government, which became the largest provider of FP services. However, most FP projects ended or decreased their activities, and as a consequence

<sup>2</sup> USAID criteria for country graduation are: (1) a total fertility rate less than or equal to 3.0; (2) a modern contraceptive prevalence rate of at least 50% or more of married women of reproductive age; (3) at least 70% of the population can access at least three FP methods within a reasonable distance; (4) no more than 30% of FP products, services, and programs offered in the public and private sectors are subsidized by USAID; and (5) major service providers (public sector, NGOs, commercial sector) generally meet and maintain standards of informed choice and quality of care.

both clients' and providers' awareness of new FP methods decreased as well (Abdel-Tawab et al., 2016; Robinson & El-Zanaty, 2007).

### **Policies in the Second Decade of the Twenty-First Century**

The family planning program has been negatively affected by political changes following the 2011 Revolution (along with the increased strength of conservative groups and the rise of the Muslim Brotherhood to power), which was associated with disruptions of health services and decreased resources to family planning (Radovich et al., 2018). Former President Mohamed Morsi (2012–2013) confirmed repeatedly that Egypt's large population was an added value that should be commended and encouraged, and hence government commitment to Family Planning diminished during that period. The use of contraception has increased over the years in Egypt and it has been one of the main determinants of the fertility transition. While in 1974 26.5% of women used a contraceptive method (traditional or modern), between 1988 and 2008 overall contraceptive use increased among married women from 38% to 60%, plateaued after 2000, and then declined slightly in 2014 to 59% (Al Zakak & Goujon, 2017). The TFR that has been declining since the 1960 to reach its lowest value in 2008, has increased to about 3.5 in 2014. At the same time, the proportion of women with unmet need for contraception has halved passing from 23% in 1992 to 13% in 2014, but no major progresses have been recorded since 2003. It is worth noting that very few Egyptian women (0.1% in 2014) use contraception before having their first child.

On July 24, 2017, while attending the fourth National Youth Conference held at the Alexandrina Bibliotheca, President Abdel Fattah El Sisi said: *"the greatest two challenges Egypt is facing are terrorism and population growth. We positioned those who try to kill us with the population growth, as a challenge. This (population growth) reduces Egypt's opportunities for progress. [...] The challenges that we are facing are*

*'shared' challenges between the state and the people."* After El Sisi's speech, the Ministry of Health and Population together with the Ministry of Social Solidarity announced a new family planning campaign (Al Sherbini, 2017).

Through workshops, conferences, and door-to-door activities, the *Itnein Kifaya* ('two is enough') campaign, launched in 2017, aims to raise Egyptian women's awareness of the need to curb population growth. It addresses poor households that are beneficiaries of the Takaful (Solidarity) Program funded by the World Bank in 2015: an income support program for families with children (0–18 years), providing health, nutrition, and education for children as well as sexual and reproductive healthcare.

The new population policy is targeting rural areas where the fertility rate is particularly high, large families being considered a source of economic strength, and birth control comes up against cultural resistance (Awadalla, 2017). During a conference on population and development, the Egyptian Minister of Social Solidarity, Ghada Wali, stated that about 65% of Egypt's poor belong to oversized families, mostly residing in underprivileged and rural areas (Al Sherbini, 2017).

The program includes the distribution of birth control methods to the targeted 1.3 million mothers under the age of 35 to encourage them to have only two children. Education and empowerment of women are key elements in the program. The quantitative target of the program is to bring the fertility rate down from 3.5 children per woman to 2.4 by 2030. The target population aimed at by 2030 with this policy is 112 million people, slowing down the mean rate of population growth from 1.6% to 1.2%.

In February 2020, Egypt's Prime Minister announced that the government is taking measures to limit subsidies to only two children per family – whether in the ration card system or the "Takaful and Karama" (Solidarity and Dignity) project. Subsidies would be allocated only to first- and second-born children, while any additional children would be the sole financial responsibility of the family (Eman, 2018; Egypt Independent, 2020).

## Iran

Iran has passed through four phases of population policy design and implementation, shifting from anti-natalist to pronatalist positions, to anti-natalist positions again, and finally to a concern for declining population growth.

### Pre-Islamic Revolution

In Iran, contraceptives were first introduced by the International Planned Parenthood Federation (IPPF) through the commercial sector in the early 1950s and, by the early 1960s, a program was introduced making them available, when the government set the goal to reduce the annual population growth from over 3% to 1% per year in the next 20 years (Robinson & Ross, 2007).

Subsequently, in 1967, Iran introduced an official family planning program through the Family Protection Law, aiming at improving the status of women by raising the age of marriage. It involved a huge mass media campaign to promote family planning, which resulted in a contraceptive prevalence rate of 37% among married couples by 1977, with a wide gap between rural and urban areas (20 and 54%, respectively). However, the total fertility rate remained high, exceeding six children per woman.

### Post-Islamic Revolution

The family planning program was dismantled immediately after the 1979 Islamic Revolution (Roudi-Fahimi, 2012) and the new government adopted a pronatalist policy, encouraging younger age of marriage and universality of marriage in the society; religious leaders praised women for bearing and rearing good children. The pronatalist policies continued even after the release of the data on the high growth rate by the 1986 Census.

## Revival of Family Planning Program

After analyzing the results of the census, population experts and demographers questioned the pronatalist policy (Abbasi-Shavazi, 2000b). After the Iran-Iraq war, when the government of Iran turned its focus on reconstruction, the government considered rapid population growth as a major obstacle to economic development and subsequently reversed its population policy. Thus, an anti-natalist family planning program was officially launched in December 1989.

The Family Planning Bill was ratified by the Parliament in May 1993 (Mehryar et al., 1999). Consequently, population policies were declared to be a leading priority, and a year later, the new national family planning program was launched with three main goals, namely: encouraging birth spacing intervals of 3–4 years; discouraging pregnancy among women younger than 18 and older than 35; and limiting family size to three children.

To achieve these goals, four main activities were carried out, including: educational programs through schools, colleges, and mass media regarding population issues and family planning; increased access to free contraceptives; a variety of quality family planning methods and advice on family size provided to couples; and research conducted on various aspects of family planning delivery and population policy (Hoodfar & Assadpour, 2000).

For proper support to the family planning program, Iranian policymakers were concerned that ratification by the religious leadership was of the utmost importance. Therefore, from the outset the program was presented in the context of crisis management, emphasizing that couples should decide themselves how many children they want to have, besides offering services to couples who had difficulties in conceiving. Thus, treatment of infertility became an important component of the program.

As a result, Iran experienced the most dramatic increase in contraceptive prevalence rate (CPR)



within two decades (see Fig. 11.8). Thus, the CPR of all methods increased by 150% during 1970 and 1995, whereas there was about 185% increase in the use of modern methods. The increase in the CPR resulted in a rapid decline in the total fertility rate from over 6 to 2.6 by 1996 (Abbasi-Shavazi, 2000a). Besides a sudden jump in the overall CPR, the gap between rural and urban areas also disappeared.

Mehryar (2005) reports that by the late 1990s, 80% of women in urban areas and 70% in rural areas were using any kind of contraceptives. However, in both areas about 55% were using a modern method, while the use of traditional method such as coitus interruptus was more prevalent in urban areas at 24%, against 9.5% in rural areas. He further stresses that the family planning program in Iran was also distinguished by the promotion of male and female sterilization, which many considered contrary to Islamic teachings. Furthermore, the bill rectified by the Parliament in 1993 removed economic incentives for high fertility by excluding the fourth and latter children 1 year after the ratification of the law (Mehryar, 2005).

Several measures beyond family planning were also adapted, such as: promoting women's education and employment; poverty eradication; and social security schemes. Most population and health experts attribute the success of Iran's family planning program to government's information and education programs and to a healthcare delivery system that was able to meet reproductive health needs. Roudi-Fahimi (2002) contends that the program has succeeded in removing both cultural and economic barriers to family planning, assuring the people through information and education campaign that family planning does not threaten family values and is consistent with Islamic tenets.

Since Iran's Constitution is based on *sharia*, it therefore inculcated the basic traditions of the companions of Prophet Muhammad who practiced *azl* (coitus interruptus) with the tacit approval of the Prophet. In September 1988, a national seminar held in Mashhad city presented detailed analysis of the implications of unchecked population growth on socioeconomic

development as well as the health and welfare of the citizens. The seminar participants publicly urged the government to include population issues in policy making and "*as a result of this seminar and its wide coverage by the government controlled national media, the need for a national population policy and an active family planning programme became a legitimate topic for public discussion and debate*" (Mehryar, 2005: 147).

Rural health houses established by the Ministry of Health and mobile clinics formed the backbone of Iran's well-regarded primary healthcare system, which also provided family planning services in the remotest villages, covering 95% of the population with thousands of trained volunteers having continuous personal contact with their clients, who played a major role in the provision of contraceptives along with other health services (Abbasi-Shavazi et al., 2009).

### Concern for Low Population Growth Rate

Due to the rapid decline in fertility by the first decade of this century, President Mahmoud Ahmadinejad highlighted the need for increasing the country's population, stating that Iran could support a population of up to 150 million people and declared that the "*Two children are enough*" motto stemmed from a wrong imported Western perspective. Besides, the Supreme Leader of Iran – Ayatollah Ali Khamenei – stated that family planning policies should have been ceased in the late 1990s. He also voiced his worries about the current situation which could lead to a TFR below the replacement level (Erfani, 2013; Karamouzian et al., 2014).

Consequently, serious debates over the necessity of continuing the family planning program were initiated among policymakers. Eventually, in July 2012, the Minister of Health announced a cut in the budget and stated that the Ministry would no longer provide all the routine family planning services through the public health sector. Now women were being encouraged to have three children by the age of 30. Public access to free contraceptives was not been banned but was

restricted. Iran's parliament has outlawed vasectomies and tubectomies, except to save a person's life and any medical practitioners found engaging in any surgery that reduces fertility could face up to 5 years of imprisonment (Erfani, 2013).

Since then, Iran has recorded a slight increase in the CPR from 78% to 81%, however there is a wide gap of 16% between modern and all methods (United Nations, 2021). It shows that, even though with the change of policy towards encouraging couples to have more children, it will be difficult to raise overall fertility in Iran.

## Tunisia

Among all the countries of West Asia and North Africa, Tunisia is the first country to have reached replacement level fertility by the mid-1990s. First, there was a decline in mortality, especially child mortality, which was useful for changing fertility. Thus, life expectancy at birth, which was barely 33 years after World War II, reached 37 years in the early 1950s. It reached 53 years at the end of the 1960s (Waltisperger et al., 2001). Couples started focusing on the future of their children surviving into adulthood by ensuring their well-being, education, care, and good living conditions. This decision of couples engendered a radical change in the traditional attitudes to procreation and, as mortality fell, the birth rate followed and the family size was greatly reduced.

Following Tunisia's independence in 1956, the TFR was very high, with more than seven children per woman (Seklani, 1960; Waltisperger et al., 2001), due to the absence of any birth limitation in marriage (Seklani, 1964). It remained at this level during the next decade, with the exception of a rather remarkable peak in 1964, linked to the announcement of an age-for-marriage Law. This Law of 1964 was the symbol of the triggering factor for the rapid decline in Tunisian fertility (Ayad & Jemai, 2001; Vallin & Lapham, 1969). Thus, the TFR fell from 7.5 children per woman in 1965 to 6.3 in 1970 (a drop of 16% in 5 years), before reaching, three decades later, the threshold of 2.1 children

per woman (Sandron & Gastineau, 2002). Between the end of the 1960s and the end of the 1990s, the decline in fertility was sustained and regular.

During 1965–2002, fertility systematically declined at all ages, and particularly collapsed between the ages of 20 and 29. During the 2000s, fertility stabilized for a good 10 years at the level which ensures the replacement of generations. The last decade was marked by a slight upturn in fertility, which reached 2.4 children in 2014, which could be linked to a certain return of the Tunisian society to traditional values. However, it could just as well be explained by a decline in the average age at marriage (Ouadah-Bedidi & Vallin, 2018). Thus, the average age at first marriage fell from 29.2 years in 2014 to 27.9 years in 2018, and during the same period the proportion of single people aged 25–29 and 30–34 fell by 27 and 20%, respectively.

The latest demographic survey from the National Institute of Statistics (Institut National de la Statistique & UNICEF, 2019) also confirmed a stabilization, or even a decrease in the use of modern contraception, which combined with the lowering of the age at marriage, led to a rise in fertility. The context of the economic and social crisis that followed the Jasmine Revolution in Tunisia in 2011 has probably led to changes in attitudes towards the family, which would be interesting to explore in order to understand the effects of the upheaval on the demographic behavior of Tunisians. In any case, in 2018 the level of fertility returned to its level of the 2000s, i.e., the level of replacement of generations (Institut National de la Statistique & UNICEF, 2019; Institut National de la Statistique, 2021).

Tunisia's population policy evolved from personal status codes and through legislation and has passed through five distinct phases.

## Liberalization of Contraception and Abortion

Until 1966, Tunisia was under French Protectorate and all the laws applied to it were French laws,

in particular the Law of 1920 on contraception, which was prohibited, its use being punished up to 6 months in prison. Since contraceptives and anti-conception devices were not made in Tunisia, their importation was also prohibited. It was on January 9, 1961, that this Law was repealed, and contraception became legal in all aspects: production, importation, sale, and propaganda. Some might see in this Law a text and a reform which would accompany the law of December 14, 1960, limiting family allowances to only four children; a Law that was unfavorable to large and modest families. It was therefore necessary to provide these families with the means to limit their size. However, no one can deny the purely demographic nature of the 1960 Law, and in view of the delay between the two legal texts (that on allowances and that on contraception), one can only think that it was a measure with the same goal: to control or slow down demographic growth.

Four years later, in July 1965, Tunisian legislation again amended certain other aspects of the French Law of 1920, in its parts relating to abortion. Thus, abortion became legal if the health of the mother and child was compromised by the continuation of the pregnancy and if it was performed in the first 3 months of the pregnancy, and when the spouses have at least five living children. However, one condition was attached, namely that the procedure could only take place at a health establishment and performed by a licensed health professional. Unlike the law on the liberalization of contraception, the objective was to put forward the ‘disastrous’ consequences of clandestine abortions performed before that date (Marcoux, 1972). In addition to being a preventive method of difficult social situations and compromised health, this measure was also seen as an act of ‘catching up’ to the failure of contraception, in particular following the establishment of the experimental family planning program in 1964.

Less than a decade later, in 1973, a second reform on abortion, completely legalizing it (the threshold of five children was abolished, a married woman no longer needed the consent of her husband, unmarried women were also entitled

to it, and no restriction was made to underage women). For the second law completely liberalizing abortion, demographic aim of the legislator was no longer discussed and not even mentioned in the preparatory work for the 1973–1976 development plan. However, as Marcoux (1972: 225) underlined “... (t)he part of fertility that will fall to family planning will probably not be able to be achieved if abortion is not fully liberalized.”

### **Raising of Legal Minimum Age at Marriage, Prohibiting Polygamy, and Instituting Divorce**

While the birth control program played a role in accelerating the decline in fertility, it was not the primary factor in initiating the decline, which was accomplished by the rise in the age at marriage (Ayad & Jemai, 2001; Ouadah-Bedidi & Vallin, 2000; Sandron & Gastineau, 2002). Before Tunisia’s independence, marriage for men and women was possible from puberty, but the Personal Status Code promulgated in 1956 set the minimum legal age for marriage at 15 for women and 18 for men. This first legal measure preserved women from too early marriage arranged by families or forced marriages that were concluded in the past.

This delay enabled the young spouses to acquire the necessary maturity to be able to express their consent, which in turn was one of the basic principles of the family reform of 1956. In 1963, when the experimental family planning program was being prepared, the legal minimum age for marriage was raised a second time through legislation and fixed at 17 years for women and 20 years for men.

At that time, Marcoux noted that with the exception of China, Tunisia was the only Third World country where the legal minimum ages at marriage was equal to or greater than 18 years and this measure was a clear desire of the legislator to overturn the trend of population growth, since at that time a third of the marriages concluded were for women aged 17 years, even if the average age at marriage had begun to increase long before the

promulgation of this Law (Vallin & Lapham, 1969).

Moreover, it was this Law of 1964 that definitively set the stage for the decline of Tunisian fertility. At that time, the family planning program, as we will see below, was still in its infancy. The raising of the minimum age at marriage in 1956 was associated with other avant-garde measures governing the institution of marriage: the prohibition of marriages between persons with a high degree of consanguinity and divorce by simple repudiation and will. Unilateral marriage gave way to judicial divorce before a judge (whether by mutual consent or at the request of one of the spouses), and polygamy was prohibited and punishable by fine and even imprisonment.

### **Improvement of Status of Women and Guarantee of Their Rights in the Society Through Access to Education and Paid Work**

The Personal Status Code laid the first foundations for family regulation. Tunisian women were given more rights and guaranteed a place and status in the family and society. Since then, the Tunisian legislator has continued to protect these gains and supplement them in the private and public domains (Chekir, 2001). Tunisian women have thus enjoyed the same rights as men with regard to access to education and paid work.

In 1968, two measures were taken that established the principle of gender equality in the world of work. In the public service, no discrimination based on sex was made and Tunisia ratified the same year the International Convention concerning equal pay between the sexes. In addition, working women were protected during their pregnancies and after childbirth against any loss of employment related to their situation or due to prolonged illness related to their maternity. Unlike men, the employer cannot terminate their employment contract (Marcoux, n.d.). In terms of schooling and education, girls and boys have also the same rights from the age of six. The state

supports massive free education for the population and grants assistance to families with limited resources.

### **A National Family Planning Program Within a More General Context of Economic Development and Women's Liberation**

It was in the context of socioeconomic and political development, implemented in the first decade of Independence, that Tunisia started in 1963, with the support of the Ford Foundation, its experimental family planning program. It aroused a general enthusiasm among the authorities and national organizations, in particular the National Union of Tunisian Women (UNFT), which considered this program as a vehicle to supplement the emancipation that the Personal Status Code (CSP) has come to bring to Tunisian women (Daly, 1969).

Less than four decades later, the challenge of controlling Tunisian demographic growth has been met. However, if the role played by the family planning program in the decline in Tunisian fertility is very often highlighted, the fact remains that its effect has come to reinforce a trend triggered and started a decade earlier by another determinant of fertility, namely the decline in the age at marriage associated with modernist socioeconomic legislations that encouraged and created couples' desire to limit the size of families.

Two years after setting up of the experimental program, the results were certainly not encouraging but still sufficient to bring about changes in reproductive behavior on their own that are firmly anchored in the Tunisian tradition. The program was then extended nationwide with the goal of lowering the birth rate from 46 per thousand in 1966 to 36 per thousand in 1971. But the expected results were not there, even worse, the program almost collapsed towards the end of the 1960s following President Habib Bourguiba's speech calling for a resumption of the birth rate in 1968, when the preliminary results of the Tunisian population census were known. Thus,

a decline in program activities, even a temporary one, followed (Vallin, 1968; Gueddana, 2001).

During the Third Development Plan (1969–1972), concern for the consequences of rapid demographic growth returned to the political debate. The lack of psychological preparation of women and the lack of information and communication were identified as the main weaknesses of the National Family Planning Program (PNPF). The government quickly reorganized family planning services by setting up a ‘communication’ and ‘training’ department, responsible for creating audio-visual means of sensitizing the population and ensuring adequate training for family planning officials.

At the end of the 1960s, although the number of new family planning acceptors had increased, the effects of the program were not yet visible; the birth rate had not fallen, it even increased in 1972 (Marcoux, 1972). It was not until the mid-1970s, when the PNFP was really strengthened and restructured by entrusting its management to the National Office for the Family and the Population, which continued to coordinate all the actions of the PNPF with all governmental and non-governmental partners, public institutions and associations, that its impact on the decline was visible with a contribution to the reduction in the number of births averted estimated at 55% between 1976 and 1984 and at 45% between 1985 and 1994. The program was completely free and the National Office of Family and Population (ONFP) continues until today to implement the national policy on family planning and population, the two fundamental aspects of which are the reduction of demographic growth and the promotion of women’s and family’s health (Gueddana, 2001).

### **The Demographic Dividend and the Issue of Celibacy**

Tunisia is the first country in Africa and among the Arab-Muslim countries to have reached the generational replacement threshold at the end of the 1990s. By being a precursor in the launch of

the first family planning program within this region, Tunisia has won worldwide recognition for its population policy, particularly in sub-Saharan Africa, and is now known for its innovative and active demographic policy. Many studies have identified the increase in the age at marriage as the first factor that triggered the decline in fertility, while recognizing that family planning played also a role in reinforcing the decline in fertility in the 1970s.

The origin of all this process of change was an avant-garde legislation promulgated by President Bourguiba after Independence in 1956. This legislation laid the first foundations for a modern society, guaranteeing women the same rights than men, and offering families the means to limit their descendants by liberalizing access to contraception. Despite a tremor towards the increase recorded at the turn of the 2000s, which brought fertility to 2.4 children in 2014, the generation renewal threshold was again reached in 2018. Tunisia is continuing its demographic policy according to the three criteria adopted by Marcoux (n.d.). Tunisia considers that its fertility level is now satisfactory. It wishes to continue its policy towards lowering the level of fertility and continues to provide the means to achieve this objective.

Everywhere, the decline in fertility is leading to a profound transformation of the age structure of the population. The phenomenon is now widely engaged in Tunisia. In the 2014 census, the 0–4 years age group accounts for about 9% of the total population, which is half of its share in 1966. For the time being, this phenomenon of shrinking of the base of the pyramid, which has remained stable during the last two decades, due to the slight fluctuation towards the rise in fertility, plays in the direction of a reduction in the burden of inactive people. It is still a factor favorable to socioeconomic development, and this opportunity should not be missed, because if fertility has fallen back to its level of strict renewal of generations, there is no indication that it will stop at this threshold.

The latest data from the 2018 survey already gives a fertility level of 1.6 children per woman

for the capital. The fertility levels of the past two decades have paved the way for a sort of 'demographic golden age', which should be seized before fertility declines further in the decades to come. Indeed, these fewer generations, which today lighten the burden of working people, will soon reach working age, while their elders, more numerous, will reach retirement age. Population aging will then begin to swell the ranks of the elderly (11% of the population is aged 65 and over in the 2014 Census). Tunisia will then be confronted with the problems that the countries of the North are experiencing today, but in a much more brutal way because, just as the decline in fertility has been, demographic aging will be much faster than in Europe.

Alongside this demographic window to be seized, Tunisia will have to face a major societal challenge, common to the three Maghreb countries, which is that of prolonged celibacy. After having been at the origin of the decline in fertility, the decline in the age at marriage continued to increase during the second half of the twentieth century. Reaching 30 years and sometimes even more in certain categories of the population in the late 1990s, adult celibacy has never been higher: one in three women aged 30 and over one in five aged 40 were still single in 2014.

This is an unprecedented situation in a country where married life and sexuality are only allowed within the legal framework of marriage. The transformation of the Tunisian family and the upheaval experienced by the marriage institution and the formation of couples bring with it a set of challenges to be taken up in terms of social and family arrangements (Bensalem & Locoh, 2001). Solutions are to be offered to young adults who wish to start a family, live an emotional life, have a fulfilling sexuality and youth, provide women who wish to work and have children the support which allow them not to sacrifice one or the other. Another of their projects is to reconcile professional and family life and above all, to provide employment for the young generation of working people who will have to bear all the consequences of demographic change, past and future.

## Conclusion

Although during the past 50 years rates of natural increase have declined substantially in most countries in the region, most countries are not likely to achieve population stabilization in the near future. Of particular concern is the high rates of natural increase of 2% or higher in Egypt, Algeria, and Sudan (the three largest countries in North Africa). If the population growth rates in these countries are not reduced, their population could double in the next four to five decades. The UN Population Division's projections under the Medium variant scenario suggest, that by 2050, Sudan will experience 86% increase in its population, in Egypt there will be 56% increase, and Algeria will record a 40% increase (United Nations, 2019). On the other hand, three other countries in North Africa (Tunisia, Libya, Morocco) are projected by the UN to experience population increase of 16 to 25%, as the rates of natural increase in these countries vary between 1.1 and 1.4% per annum. Only Tunisia and Egypt in North Africa have had official family planning programs. However, Tunisia's efforts were more successful due to a combination of family planning program efforts along with emphasis on educating women and enhancing their status. In Egypt, however, although family planning program under Presidents Sadat and Mubarak received the government's patronage for over three decades, the program suffered in the past decade due to lack of governmental support. The kind of emphasis which was put by the Tunisian government was absent in Egypt. Perhaps for that reason fertility rates in Egypt are still high. Iran, on the other hand, provides an example of an extremely successful family planning program, which unlike Egypt has provided a consistent support from Islamic clergy to the highest level of political leadership, along with an efficient cadre of health workers.

If other countries in the region wish to achieve a rapid fertility transition, it is important that like Iran and Tunisia they implement multi-sectorial population policy such as a strong family planning program along with taking other

initiatives aiming at promoting female education, providing women with employment opportunities and raising their status.

## References

- Abbasi-Shavazi, M. J. (2000a). *Effects of marital fertility and nuptiality on fertility transition in the Islamic Republic of Iran, 1976–1996* (Working Papers in Demography No. 84). Australian National University.
- Abbasi-Shavazi, M. J. (2000b, January 16–21). *National trends and social inclusion: Fertility trends and differentials in the Islamic Republic of Iran, 1972–1996*. Paper presented at the IUSSP conference on family planning in the 21st century, Dhaka, BD.
- Abbasi-Shavazi, M. J., McDonald, P., & Hosseini-Chavoshi, M. (2009). *The fertility transition in Iran: Revolution and reproduction*. Springer.
- Abdel-Tawab, N. G., Oraby, D., & Bellows, B. (2016). *Situational analysis of the private sector in the delivery of family planning services in Egypt: Current status and potential for increased involvement* (USAID Research Report). Population Council, The Evidence Project.
- Abyad, A. (2018). Demographic changes in the GCC countries: Reflection and future projection. *Middle East Journal of Age and Ageing*, 15(1), 20–24.
- Al Sherbini, R. (2017). Overpopulation remains Egypt's top threat. *Gulf News*. <https://gulfnews.com/world/mena/overpopulation-remains-egypts-top-threat-1.2068627>. Accessed 14 July 2021.
- Al Zalak, Z., & Goujon, A. (2017). Exploring the fertility trend in Egypt. *Demographic Research*, 37(32), 995–1030.
- Ali, K. A. (2002). *Planning the family in Egypt*. American University in Cairo Press.
- Allman, J. (1980). The demographic transition in the Middle East and North Africa. *International Journal of Middle East Studies*, 12, 277–301.
- Ambrosetti, E. (2011). *Égypte, l'exception démographique* (Les cahiers de l'INED No. 166). Institut national d'études démographiques (INED).
- Awadalla, N. (2017). Egypt promotes birth control to fight rapid population growth. *Reuters Health News*. <https://www.reuters.com/article/us-egypt-population/egypt-promotes-birth-control-to-fight-rapid-population-growth-idUSKCN1BA153>. Accessed 21 June 2021.
- Ayad, M., & Jemai, H. (2001). Les déterminants de la fécondité. In J. Vallin & T. Locoh (Eds.), *Population et développement en Tunisie: la métamorphose* (pp. 171–201). Cérès Éditions.
- Bensalem, L., & Locoh, T. (2001). Les transformations du mariage et de la famille. In J. Vallin & T. Locoh (Eds.), *Population et développement en Tunisie: la métamorphose* (pp. 153–170). Cérès Éditions.
- Chekir, H. (2001). Textes juridiques choisis et commentés sur la politique de population en Tunisie. In J. Vallin & T. Locoh (Eds.), *Population et développement en Tunisie: la métamorphose* (pp. 601–615). Cérès Éditions.
- Cleland, W. (1936). *The population problem in Egypt. A study of populations trends and conditions in modern Egypt*. Science Press/Economic Research Forum.
- Daly, A. (1969). Le programme de planning familial en Tunisie. *Revue tunisienne de sciences sociales*, 17/18, 307–320. (Actes du Colloque de démographie maghrébine, Tunis, TN, January 6–10, 1969).
- Egypt Independent. (2020). *Egypt takes measures limiting subsidies to 2 children per family*. <https://egyptindependent.com/egypt-takes-measures-limiting-subsidies-to-2-children-per-family/>. Accessed 4 July 2021.
- Eman, A. (2018). Egypt parliament mulls financial incentives for two-child policy. *The Arab Weekly*. <https://theArabweekly.com/egypt-parliament-mulls-financial-incentives-two-child-policy>. Accessed 4 July 2021.
- Erfani, A. (2013). Fertility in Tehran City and Iran: Rates, trends and differentials. *Population Studies*, 1(1), 87–107. [in Persian].
- Fargues, P. (1997). State policies and the birth rate in Egypt: from socialism to liberalism. *Population and Development Review*, 23(1), 115–138.
- Gueddana, N. (2001). L'expérience du programme tunisien de planification familiale (1956–1996). In J. Vallin & T. Locoh (Eds.), *Population et développement en Tunisie: la métamorphose* (pp. 205–237). Cérès Éditions.
- Hoodfar, H., & Assadpour, S. (2000). The politics of population policy in the Islamic Republic of Iran. *Studies in Family Planning*, 31(1), 19–34.
- Ibrahim, S. E. (1995). State, women, and civil society: An evaluation of Egypt's population policy. In C. M. Obermeyer (Ed.), *Family, gender and population in the Middle East* (Policies in Context) (pp. 56–79). The American University in Cairo Press.
- Ibrahim, S. E., & Ibrahim, B. L. (1998). Egypt's population policy: The long march of state and civil society. In A. K. Jain (Ed.), *Do population policy matter? Fertility and politics in Egypt, India, Kenya, and Mexico* (pp. 19–52). Population Council.
- Institut National de la Statistique. (2021). *WebSite*. Ministère du Développement de l'Investissement et de la Coopération Internationale (MDICI). <http://www.ins.tn/en/statistiques/I10>. Accessed 2 Apr 2021.
- Institut National de la Statistique & UNICEF. (2019). *Enquête par grappes à indicateurs multiples (MICS), 2018* (Rapport Final). Ministère du Développement de l'Investissement et de la Coopération Internationale (MDICI).
- Karamouzian, M., Sharifi, H., & Haghdoost, A. A. (2014). Iran's shift in family planning policies: Concerns and challenges. *International Journal of Health Policy and Management*, 3(5), 231–233.

- Karim, M. S. (1997). *Reproductive behaviour in Muslim countries* (DHS Working Paper No. 23). Macro International Inc. & United Nations Population Fund (UNFPA).
- Karim, M. S. (2004). Socio-economic development, population policies, and fertility decline in Muslim countries. *The Pakistan Development Review*, 43(4 Winter Part II), 773–789.
- Marcoux, A. (1972). Réflexions sur les objectifs démographiques à long terme de la Tunisie. *Revue tunisienne de sciences sociales*, 30(31), 223–226.
- Marcoux, A. (n.d.). *Législation et politique démographique en Tunisie*. N.I. Mimeo (Unpublished).
- Mehryar, A. A. (2005). Shi'ite teachings, pragmatism and fertility change in Iran. In G. W. Jones & M. S. Karim (Eds.), *Islam, the state and population* (pp. 118–156). Hurst & Co.
- Mehryar, A. A., Tabibian, M., & Gholipour, R. (1999). *Population policy change and fertility decline in Iran 1986–1996: A district level analysis*. Paper presented at the sixth scientific conference, Cairo, EG.
- Obermeyer, C. M. (1992). Islam, women, and politics: The demography of Arab countries. *Population and Development Review*, 18(1), 33–60.
- Omran, A. R., & Roudi-Fahimi, F. (1993). The Middle East population puzzle. *Population Bulletin*, 48(1).
- Ouadah-Bedidi, Z., & Vallin, J. (2000). Maghreb: la chute irrésistible de la fécondité. *Population & Sociétés*, 359.
- Ouadah-Bedidi, Z., & Vallin, J. (2018). Surprenante évolution de la fécondité au Maghreb. In D. Strangio (Ed.), *Africa. Storia, antropologia, economica, migrazione* (Coll. Storia d'Europa) (pp. 201–239). Edizione Nuova Cultura.
- Pew Research Center. (2011). *The future of the global Muslim population*. <https://www.pewforum.org/2011/01/27/the-future-of-the-global-muslim-population/>. Accessed 13 Apr 2021.
- President Hosni Mubarak on Egypt's Population. (2008). *Population and Development Review*, 34(3), 583–586. <https://doi.org/10.1111/j.1728-4457.2008.00238.x>. Accessed 2 Aug 2021.
- Radovich, E., El-Shitany, A., Sholkamy, H., & Benova, L. (2018). Rising up: Fertility trends in Egypt before and after the revolution. *PLoS One*, 13(1), e0190148. <https://doi.org/10.1371/journal.pone.0190148>
- Robinson, W. C., & El-Zanaty, F. H. (2007). *The demographic revolution in modern Egypt*. Lexington Books.
- Robinson, W. C., & Ross, J. A. (2007). *The global family planning revolution: Three decades of population policies and programs*. World Bank Group.
- Roudi-Fahimi, F. (2002). *Iran's family planning program: Responding to a nation's needs* (MENA Policy Brief). Population Reference Bureau.
- Roudi-Fahimi, F. (2012). *Iran is reversing its population policy*. [https://www.wilsoncenter.org/sites/default/files/iran\\_is\\_reversing\\_its\\_population\\_policy.pdf](https://www.wilsoncenter.org/sites/default/files/iran_is_reversing_its_population_policy.pdf). Accessed 1 Aug 2021.
- Sandron, F., & Gastineau, B. (2002). *La transition de la fécondité en Tunisie* (Collection Populations). L'Harmattan.
- Seklani, M. (1960). La fécondité dans les pays arabes: données numériques, attitudes et comportements. *Population*, 15(5), 831–856.
- Seklani, M. (1964). Les problèmes démographiques en Tunisie. *Progrès Social*, 18, 6–18. (No. Spécial: Le planning familial).
- Shanawany, H. (1973). Stages in development of a population control policy. In A. R. Omran (Ed.), *Egypt: population problems and prospects* (pp. 189–219). University of North Carolina Press.
- United Nations. (2010). *World population policies 2009*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2019). *World population prospects 2019* (Online Edit. Rev. 1). Department of Economic and Social Affairs, Population Division.
- United Nations. (2020). *World population policies 2019*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2021). *Web Site* (Data on family planning estimates and projections). <https://population.un.org/dataportalng/home>. Accessed 6 Aug 2021.
- Vallin, J. (1968). Planning familial et perspectives de population en Tunisie, 1966–1975. *Revue tunisienne de sciences sociales*, 12, 71–88.
- Vallin, J., & Lapham, R. J. (1969). Place du planning familial dans l'évolution récente de la natalité en Tunisie. *Revue tunisienne de sciences sociales*, 6, 379–414.
- Waltisperger, D., Vallin, J., & Ben Mrad, A. (2001). La dynamique naturelle de la population depuis l'indépendance. In J. Vallin & T. Locoh (Eds.), *Population et développement en Tunisie: la métamorphose* (pp. 53–88). Cérès Éditions.
- Weeks, J. R. (1988). The demography of Islamic nations. *Population Bulletin*, 43.
- Wisensale, S. K., & Khodair, A. A. (1998). The two-child family: The Egyptian model of family planning. *Journal of Comparative Family Studies*, 29(3), 503–516.





# South Asia: Did Population Policies Trigger a Fertility Convergence?

# 12

Leela Visaria

## Introduction

This chapter discusses population policies of South Asia, namely the sub-regions of Central Asia, South Asia, and Southeast Asia that include 25 countries. These countries are very diverse in terms of their population size, ethnicity, languages, and their scripts, religion, and political institutions. About 34.4% or 2.68 billion people of world's total population live in these three Asian regions according to the UN Population Projections 2019. The population size of the countries ranges from India's 1.38 billion to less than half a million of Brunei Darussalam. India accounts for little more than half or 51.4% of the population of the region. There is diversity in religions and faiths or belief systems with sizeable populations following four of the world's major religions: Hinduism, Islam, Christianity, and Buddhism. The countries are governed by various forms of political systems ranging from authoritarian to democratic regimes. These diversities influence and also determine the policy environment of the countries including that related to population, its growth, and distribution.

Most countries in this region are quite advanced in their demographic transition but still experience population momentum because

of their young age structure. The total population of the region doubled in the 40-year period between 1980 and 2020, from 1.34 billion to 2.68 billion. However, the growth is expected to slow down in the coming decades and the total population will very likely reach around 3.3 billion by 2050, i.e., an increase of 25% in the coming 30 years. There have been and will be large inter-country variations in the population growth rate, pace of decline in fertility, and also in mortality. The latter is sometimes affected by internal ethnic strife as has been the case in Afghanistan until very recently causing heavy mortality among young men on the one hand, and, on the other hand, having indirect impact on children and vulnerable people due to shortage of essential health services and availability of food.

I will in the next section review the population policies that have been adopted in all the countries in the three sub-regions. In section two, based on the examination of the time trend in population growth and fertility in each of the 25 countries, I will discuss that in spite of initial differences in the levels, there is a remarkable convergence in fertility in the recent times among most of the countries. This prompts discussion in section three to closely examine the impact of population policies directed to fertility reduction versus other developmental policies and measures in whose presence fertility decline gained momentum. Before concluding, I will dwell on the challenges that several countries will face in the years to come with respect of the

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changing age structure of their population with increase in the share of aged and decline in the share of labor force. In this context, possibilities of changes in the anti-natalist policies pursued thus far along with encouraging and facilitating both internal and international migration will need serious focus.

## Population Policies of Central Asian Countries

The Central Asia region comprises five land-locked countries: [Kazakhstan](#), [Kyrgyz Republic](#), [Tajikistan](#), [Turkmenistan](#), and [Uzbekistan](#). When the Soviet Union collapsed, the five Central Asian Soviet republics became independent in 1991 and became sovereign nations. The countries are culturally and ethnically diverse and have followed different paths to political and economic development. Close to 74 million people today live in the region ranging from 33.6 million in Uzbekistan to 5.9 million in Turkmenistan. In contrast to the projected demographic decline in much of the former Soviet Union, the Central Asian region is projected to experience significant population growth and reach close to 100 million by 2050 according to the United Nations (2019).

Sandwiched between Russia and China, after becoming independent nations, the main foci of these autocratically run republics have been economic development to be achieved by exploration and exploitation of their natural resources. After 1991, many Russians and other Europeans residing in this region started leaving and thereby created shortage of highly trained manpower (Marat, 2009). However, the countries started with some advantages because the Soviet Union had invested in health and education in the entire territory under their control. So, infant and child mortality in Central Asia has been falling, life expectancy has been going up, and most people had received education up to secondary level (Barbieri et al., 1996).

The Soviet regime had made no attempt to influence the population growth of the Central Asian republics and, after attaining Independence, four of the five countries did not see any

need to have comprehensive population policies. In the 30-year period since Independence, the population of the five countries has grown at varying pace – ranging from barely 0.5% per annum in Kazakhstan to 3.1% in Tajikistan (see Table 12.1). The slow growth in geographically the largest country in the region has prompted Kazakhstan to want its population to grow, whereas Tajikistan wanted to lower its population growth.

Around the time of Independence, the total fertility rate (TFR) in Central Asian countries had already reached moderate levels of three to four children per woman, most likely due to the spread of female education and secularization, which reduced the strength of traditional family norms and desire for large family. This was achieved by the practice of abortion to both space and limit fertility rather than by using modern or traditional birth control methods. However, since the turn of this century, in four of the five countries, TFRs have remained either relatively stagnant or experienced very slow decline. Only in Uzbekistan the TFR fell to 2.4. According to the Population Reference Bureau estimates for 2019, TFRs ranged between 3.5 in Tajikistan and 2.4 in Uzbekistan, as shown in Table 12.1. Except for Tajikistan, none of the countries have specific policies to lower fertility levels. There is some concern expressed by all countries about adolescent fertility (since age at marriage has traditionally been quite low in these countries), but only Tajikistan and Turkmenistan have proposed measures to increase the minimum age at marriage and extend secondary education to girls. The other three countries have not come up with any specific programs to address adolescent fertility.

As far as reproductive health policies are concerned, the five countries of the Central Asian region do not have uniform policies. All the countries have continued to follow the liberal abortion law that the former Soviet Union passed in 1955 by making it available on medical and social grounds. These regulations permit abortion to all currently married women on request, to save their life, to preserve their physical as well as mental health, in case of rape or incest, because

**Table 12.1** Population size, TFRs and other demographic indicators of Central Asian countries

Country	Population (in million)		Total fertility rate		Abortion Rate	CPR (percent)
	2000	2020	2009	2019		
Kazakhstan	14.9	18.8	2.7	3.0	24.5	55
Kyrgyzstan	4.9	6.5	2.9	3.3	12.4	42
Tajikistan	6.2	9.5	3.6	3.5	8.6	29
Turkmenistan	4.5	6.0	2.8	2.8	12.4	50
Uzbekistan	24.8	33.5	2.6	2.4	5.2	65
Total	55.3	74.3				

Sources: Population for 2010 and 2020 figures are from United Nations (2019); total fertility rates for 2009 and 2019 are from Population Reference Bureau (2009, 2019). Abortion rates are from United Nations, 2014. Estimates for abortion rates (per 1000 women aged 15–44) are for years 2011–2012. The CPR (Contraceptive Prevalence Rate) data are from United Nations (2020). They are based on surveys conducted between 2014 and 2018

of foetal impairment, and for economic or social reasons. However, safety of abortion is not addressed by Tajikistan and Uzbekistan, whereas Kazakhstan, Kyrgyzstan, and Turkmenistan have measures to provide safe abortions and increase access to sexual and reproductive health (SRH) services.

Except for the Republic of Tajikistan, none of the countries have specific policies to lower fertility levels. In 2002, the **Tajikistan** government issued an order titled ‘On the Concept of State Demographic Policy of the Republic of Tajikistan, 2003–2015’, and since then from time to time has adopted laws to promote healthy life style. Along with lowering high fertility by promoting IUD as a contraceptive method, the Tajikistan Government is also concerned with marriages between close relatives. So, it has introduced a legal ban on such marriages and has made mandatory prenuptial medical exams for newlyweds in order to decrease the number of children born with birth defects, thereby ensuring better family health. For the poor country of Tajikistan, however, the tasks are not supported by concrete actions or effective measures and remain only declared efforts on the part of the Government.

In **Kazakhstan**, according to some experts, the public sector has limited understanding of the links between contraceptive use, abortions, and maternal mortality ratios (MMR). While maternal and child health (MCH) are official policy priorities, family planning is not seen by the Kazakhstan government as a priority intervention.

Contraceptives have not been included in the Out-patient drug benefit plan (ODBP) for outpatient services. The contraceptive market in Kazakhstan is almost entirely private, a situation that has not changed since the beginning of the twenty-first century. Affordability of modern contraceptives to many couples has remained a problem because the pharmaceutical companies control the types of contraceptives that are available in the market and it is alleged that the state pharmacy committee sets prices for the benefit of the private pharmaceutical sector rather than for the benefit of the client (Armand et al., 2006).

In **Kyrgyzstan**, high-level policymakers have described maternal and child health as priority areas within the health sector reform program for which upgrading of skills of primary healthcare (PHC) personnel in family planning is identified as a key strategy. While the country provides increased resources for health, the implementation is jeopardized by factors such as political instability, slow economic growth, and poor enforcement of endorsed priorities and decisions (Starr et al., 2016). Kyrgyzstan receives substantial quantities of donated condoms, notably through the Global Fund. Products imported under humanitarian aid programs are exempt from certain regulations. *“In particular they do not have to be registered with the MOH (Ministry of Health) and do not need to be tested for safety or quality. Some donated products, particularly condoms, find their way into the commercial supply through the black market”* (Armand et al., 2006: 50).

**Turkmenistan**, with the smallest population in the region, has large reserves of oil and gas. It is governed by the most autocratic rulers since Independence where freedom of speech, the press, and religion have remained curtailed to a very large extent. It is the most isolated country in Central Asia. Turkmenistan has the highest infant, child, and maternal mortality rates, and the lowest contraceptive use rate compared to the other countries in the region. The Government promotes a pronatalist policy and its total fertility rate, although relatively low, has remained stagnant around 2.8 for three decades. Being a very closed country, very little information independent of official statements is available to know what the true picture is.

**Uzbekistan** leaders, on the other hand, have been concerned about the country's size and have been promoting family planning to mitigate population growth. In an attempt to reduce the number of abortions and the associated complications, the Uzbek Health Ministry has been promoting IUDs by making them available free. However, it is alleged that in the guise of providing quality healthcare to women, hysterectomies are performed and IUDs are inserted without informing women. The health service providers, especially doctors, are forced to follow written instructions to bring down the birth rate, sometimes using non-voluntary medical interventions like hysterectomies. These providers are penalised or even sacked if they fail to meet the assigned targets (Bukharbaeva, 2005). In Uzbekistan today, the TFR of 2.4 is the lowest and the contraceptive prevalence rate of 65% is the highest among all the countries of Central Asia.

Central Asia does not have well-coordinated population policies and its demographic scenario is likely to exacerbate the current structural weaknesses and lead to social tensions. All countries need sound policies on population and social issues, along with policies on migration, in order to engage their growing labor force in productive employment.

## Population Policies of Southeast Asian Countries

The Southeast Asian region comprises of eleven countries: Singapore, Thailand, Malaysia, Indonesia, the Philippines, Viet Nam, Myanmar, Cambodia, Laos, Timor-Leste, and Brunei. Except for Thailand, all remaining ten countries were colonised for varying duration by European nations who were largely motivated by economic interest, reaping profit from rubber, oil, and spices. Close to 670 million people today live in the region ranging from less than half a million in Brunei to 273 million in Indonesia. The other two countries with large populations close to 100 million are the Philippines and Viet Nam with estimated population of 109 and 97million, respectively. The population of the Southeast Asian region is projected to reach close to 792 million by 2050 according to the United Nations (2019). The overall growth rate of population has slowed down considerably in recent past—a trend that is likely to continue in future. It is expected that the region will add only 122 million or 18% more population in 30 years between 2020 and 2050. As shown in Table 12.2, barring Timor-Leste with total fertility rate of 4.1 and Laos and the Philippines with TFR of 2.7, elsewhere fertility has fallen below 2.5 children per woman.

At least half of these countries – Singapore, Thailand, Indonesia, and Malaysia and to a somewhat lesser extent the Philippines and Viet Nam – experienced dramatic economic growth and improved their human resource by investing in education and health in a short period of time during 1965–1990. Factors that facilitated the ‘miracle’ growth have been researched by economists and others and argued with data that trade and industrial policies, technological progress, savings and capital accumulation, and governance of these countries have cumulatively played important role. However, economic demographers have shown that the drivers of the

**Table 12.2** Population size, TFRs, and CPRs of Southeast Asian countries

Country	Population (in million)		Total fertility rate		CPR percent
	2010	2020	2009	2019	
<b>Southeast Asia</b>	<b>525.01</b>	<b>668.62</b>			
Brunei	0.33	0.44	1.7	1.9	NA
Cambodia	12.15	16.72	3.0	2.5	56.3
Indonesia	211.51	273.54	2.5	2.3	55.5
Laos	5.32	7.28	3.5	2.7	54.1
Malaysia	23.19	32.37	2.6	2.2	52.2
Myanmar	46.70	54.41	2.3	2.3	52.2
Philippines	77.99	109.58	3.3	2.7	54.1
Singapore	4.01	5.80	1.3	1.1	62.0
Thailand	62.95	69.80	1.8	1.5	78.4
Timor-Leste	0.88	1.32	6.5	4.2	26.1
Vietnam	79.91	97.34	2.1	2.0	77.5

Sources: Population for 2010 and 2020 figures are from United Nations (2019). Total fertility rates for 2009 and 2019 are from Population Reference Bureau (2009, 2019). The CPR data are from United Nations (2020). They are based on surveys conducted between 2014 and 2018

NA Not available

engine are people or labor force and that without policy-induced changes in demographic structure of their populations, the growth could not have been possible. After examining the population policies of these countries, I will discuss how and why the remaining Southeast Asian countries differed in their efforts to catch up with their neighbors.

Since becoming Independent in 1965, the government of **Singapore** has been very active in regulating its social policies including those that affect its multi-ethnic populations. In an attempt to slow the trend of population expansion due to migration and high birth rates, Singapore constituted a Family Planning and Population Board (SFPPB) in 1966 to encourage families to stop at two children by offering incentives and disincentives, including abortion. These measures brought fertility down and by 1975, the total fertility rate reached replacement-level. During this period, the country also underwent economic restructuring that brought women into the labor force, improved educational levels of young people, and delayed marriage with sizeable proportion of women and men choosing to remain single or having just one child. Fertility continued to decline with the TFR reaching 1.5 by 1985. To avert the long-term consequences of these realities, a new population policy (NPP) was

launched in March 1987 with a slogan ‘Have Three Or More Children If You Can Afford It’. Campaigns through mass media, and package of incentives to have and raise children dominated the scene. However, when the response of people did not change and the TFR did not go up, the Government in 2001 announced a Baby Bonus Scheme that would give parents SGD 9000 for the second child and SGD 18,000 for the third child over 6 years to cover the cost of raising children (Wong & Yeoh, 2003). Despite such measures, fertility in Singapore has continued to fall to a TFR of 1.2 according to the latest estimate for 2019, giving rise to issues of aging labor force, increase in elderly in the population, and associated issues. These figures raise questions such as whether the pro-fertility policies of Singapore offer a model for other low-fertility countries in Asia.

**Thailand** is one such country, where fertility has declined rapidly in a short period. Like Singapore, Thailand also adopted in 1970 an official population policy to lower fertility and to redirect population growth away from the most populous city of Bangkok. The TFR of around six children per woman in the 1960s fell to replacement level by the end of 1980s. The decline was all pervasive; fertility fell in all regions, and among all religious and ethnic groups (Guest &

Jones, 1996; Knodel et al., 1987). Fertility continued to fall and reached 1.7 in the 2000s and 1.5 by 2010. In January 2020, the Thai Government announced a pronatalist policy of offering women from low-income families cash incentive towards pregnancy and cost of child. Some of the tax relief measures are similar to that of Singapore but the fear is that the Thai couples are unlikely to reverse the trend. Therefore, some within the country are advocating measures to raise the retirement age to keep the elderly in the work force, focusing on improving the quality of life rather than on increasing births.

The most populous country in the Southeast Asia region, **Indonesia** followed a pronatalist policy after becoming Independent in 1945, believing that a large population was needed to exploit the country's natural resources. However, by 1967 after President Suharto came to power, a National Family Planning Coordinating Board (BKKBN) was established because of the realisation that rapid population growth hindered socioeconomic development. The BKKBN's tasks were to promote small family norm and reduce fertility through making contraceptives available. The TFR fell from 5.7 during 1967–1970 to 2.8 by 1995 (Permana & Westoff, 1999). The 1997 Indonesia Demographic and Health Survey unequivocally established that Indonesian couples had imbibed the two-child norm. However, since the economic crisis in 1997 and political and financial upheaval, the family planning program and fertility decline stalled. However, those who examined the available demographic survey data critically have concluded that the small family norm is widely accepted by Indonesians and decline in the TFR will resume (Hull, 2002). The TFR has indeed began to decline and has reached 2.3 births per woman during 2015–19, according to UN estimates.

**Malaysia** launched the National Family Planning program in 1966 with the aim at improving maternal and child health and decelerating the rate of population growth in a phased manner. Promotion of contraceptive use was expected to achieve the goals. However, in 1984 the Malay Government opined that

population of 70 million by 2100 would be the ideal size for achieving the development goals. In 1984, the country's population was around 15 million. In order to achieve the 70 million population goal, convergence or integration across all the social and economic ministries was envisioned. Also, in order to achieve this long-term goal, fertility would have to drop very slowly or even stall for some periods (Abdullah, 1993). However, it was impossible to arrest the pace of decline in fertility; by 2015, the TFR had reached below replacement level. Having recognised this reality, the Malay Government has been focusing on qualitative aspects of population development and is reconciled to the very likely possibility that the country will not have 70 million people.

The **Philippines** has not had a consistent policy on population growth or fertility reduction. In 1970, this predominantly Catholic country established a Commission on Population (POPCOM) with family planning as part of its activity. It provided information and services and advocated a small family size norm. However, with the change in the government in 1986 and under the influence of the Church, political and financial support for family planning was undermined, and the focus shifted from fertility reduction to maternal and child health. A few years later in the early 1990s, the new government felt that rapid population growth was constraining socioeconomic progress and saw a need for family planning and fertility reduction measures (Herrin, 2003). However, it could not do much in the light of opposition from the Catholic Church, except to proclaim the importance of responsible parenthood. There is an increasing realisation that among the major Southeast Asian countries, the Philippines has the highest fertility rate of 2.7 children per woman and one of the fastest-growing populations, with an average annual growth rate of 1.6%. Therefore, the present regime aims to reduce unplanned and unwanted pregnancies by enabling individuals to attain their desired number of children within the context of responsible parenthood. Religious bodies, culture, history, international agencies, and changing domestic leadership and government

have all influenced population policies and programs of the Philippines.

Being a communist country, the government of **Viet Nam** made in a decree of 1988 the two-child family size an official policy (when the TFR was twice as high at four children per woman). It specified that the two children should be born 3–5 years apart, what the rights and responsibilities of couples and communities were, and the incentives and disincentives. It also recommended a minimum age of 19 for the mother of a first child. By 1999, Viet Nam's TFR declined to two children per woman (Pham et al., 2013). The policy applied to all except for the ethnic minorities. The rapid decline in fertility was to a great extent achieved by widespread use of abortion in the light of strong son preference. During the 1990 decade, the country also experienced considerable socioeconomic growth. However, the Viet Nam government has so far adhered to its two-child policy, although later some modifications such as allowing choice to decide the number of children have been made. There is increasing awareness of population aging and of labor force and the need for migrants from neighboring countries for a range of jobs. However, the high cost of raising children and providing them with quality education, which is expensive, are acting as deterrents for couples to have more than one or two children. Some carefully and measured pronatalist policies are on the anvil in recent years, such as offering longer maternity leave or social benefits to women in areas where fertility is very low. However, if experiences of countries like Thailand and Singapore are any indication, then once fertility rate starts to drop, the popular view is that it is difficult to make it increase again (Viet Nam News, 2019).

The smallest country in population size in the region, with less than half a million people, **Brunei** has never adopted any explicit population policies or family planning programs. Matters related to fertility regulation and family size decisions are viewed as fundamentally personal and private, with the Brunei government taking a 'no intervention' stand. In spite of such a policy, the TFR fell from around 5.8 in 1970 to 1.9 by

2018. The decline is attributed to Brunei's rapid economic development and wealth generated by exporting its oil and gas. Equally important is the increase in women's education and employment that have led women postpone marriage, and desire fewer children (Ahmad, 2018). Continuous decline in fertility leading to population aging and close to 30% of population consisting of temporary workers, mostly from Malaysia, and their welfare issues will have to be addressed by Brunei in years to come.

**Cambodia** attained Independence in 1953 from French rule but internal conflicts and an uneasy relationship with its much larger neighbors – Thailand and Viet Nam – continued for several decades after that. Cambodia has begun to enjoy peace and prosperity and rapid economic development only since the late 1990s. Before 1990 with barely a population of ten million, the Cambodian government encouraged families to have many children. But beginning 1995, Cambodia adopted a Birth Spacing Policy to reduce undesired pregnancies and maternal and new-born mortality. Since then, the government has issued orders related to abortion, a Safe Motherhood National Policy and Strategies aimed at reducing unwanted pregnancies by enhancing access to, and utilization of, family planning services, expanding the evidence base to inform policy and strategy development. The total fertility rate in Cambodia fell from four in 2000 to 2.7 in 2014. The Government of Cambodia has recently drafted a new national population policy, 2016–2030, with twin objectives of: (1) respecting and supporting the right of all couples and individuals to have the basic right to decide freely and responsibly on the number and spacing of their children and to have access to the information, education, services, and means to do so; and (2) preparing an action plan for sustainable and equitable economic growth with understanding of the demographic factors (Royal Government of Cambodia, 2016). Since outmigration from Cambodia to other more developed nations is in large numbers, the remittances from emigrants from Cambodia have been an important factor in improvement of lives of local Cambodians. However, there is

a concern that the country's policies need to focus on exploiting the development potential embodied in migration and on improving education levels and skills of those who stay behind.

Landlocked **Laos** is one of the world's few remaining communist countries (besides its two neighbors -Viet Nam and China) and one of Southeast Asia's poorest. It was a French colony until 1953. Before 1988, the Lao government had a pronatalist population policy because of a relatively small population size (around four million) and a low density. Distribution of any contraceptive was illegal. However, after facing massive poverty problems and high fertility being identified as one of the major causes of poverty and poor health, the Lao government approved birth spacing in 1995 and made contraceptives available. The TFR dropped from 6.4 during 1990–95 to 4.5 by 2005 and further to 2.8 by 2015. The Government's realization of large differentials in fertility among ethnic groups and geographical areas and the needs of young people, has led the country to revise its population policy in 2016 to address these concerns.

**Timor-Leste**, the youngest nation in Asia, gained Independence in 2002. With a total population of about 1.2 million and an annual growth rate of 2.4%, Timor-Leste's population is also the fastest growing in the region. Despite the high rate of growth, the government of Timor-Leste instituted a pronatalist population policy because of a relatively small population size and low density. In 2014, its TFR was estimated to be 5.1, significantly higher than all the countries in Southeast Asia. Timor-Leste has adopted a National Reproductive Health Strategy (2004–2015), but did not mention or address unwanted fertility or abortion. The majority of the population is Catholic since the region was colonized by Portugal and the Church's influence is fairly strong. However, the later drafts indicated that abortion would be permitted if a woman's physical or mental health is in grave danger and her need certified by three doctors; only a fourth doctor who is an obstetrics & gynecologist can perform the abortion (Belton et al., 2009). The young country, ravaged by years of conflict and under the influence of religion will

need time to heal and respect rights of women in deciding their fertility. The elected government will have to strive to fulfill the promises made during the campaign of improving the health services.

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## Population Policies of South Asia Countries

South Asia comprises of nine countries ranging in population size of more than 1.3 billion in India to Bhutan with only 772,000 people. Besides India, the other two large countries are Pakistan (with a population of 220 million) and Bangladesh (with a population of 160 million) that are part of what was once known as the Indian Subcontinent (see Table 12.3). The countries of South Asia are culturally and ethnically diverse and have followed different paths to political and economic development. Close to two billion people today live in the region. Like many other countries elsewhere, those in the Indian Subcontinent, after attaining Independence, also started preparing Five-Year Plans to articulate their development goals. The documents invariably touched upon population issues such as the need to contain rapid growth, to lower death and birth rates, and address rural-urban migration. However, by and large, these remained pious articulations with limited well-designed and implementable steps. In the absence of clear population policies, some of the countries were unable to set clear vision and goals to guide all other sectoral policies such as of health or urbanization.

**Bhutan** and Nepal are two poor landlocked Himalayan countries in South Asia, sandwiched between a democracy and an authoritarian one-party state, i.e., India and China, respectively. Because of the mountainous terrain and limited natural resources, Bhutan embarked on planned development with Five-Year Plans beginning in 1961. In 2013, Bhutan also prepared a very comprehensive Vision 2020 document where it acknowledged the TFR having declined from around six children per woman in the 1990s to 2.5 by 2012. Bhutan's fertility fell at all ages and women of all ages have been able to access



**Table 12.3** Population size, TFRs, and CPRs of South Asian countries

Country	Population (in million)		Total fertility rate		CPR
	2000	2020	2009	2019	
<b>South Asia</b>	<b>1456.57</b>	<b>1940.37</b>			
Afghanistan	20.78	38.93	5.7	4.6	18.9
Bangladesh	127.66	164.69	2.5	2.1	62.3
Bhutan	0.59	0.77	3.1	1.7	65.6
India	1056.58	1380.00	2.7	2.2	53.5
Iran	65.62	83.99	2.0	2.1	77.4
Maldives	0.28	0.54	2.3	2.1	18.8
Nepal	23.94	29.14	3.1	2.0	52.6
Pakistan	142.34	220.89	4.0	3.6	34.2
Sri Lanka	18.78	21.41	2.4	2.1	66.7

Sources: Population for 2010 and 2020 figures are from United Nations (2019). Total Fertility Rates for 2009 and 2019 are from Population Reference Bureau (2009, 2019). The CPR data are from United Nations (2020). They are based on surveys conducted between 2014 and 2018

contraception that became widely available in the last two decades (Dorjee & Spooenberg, 2016). According to the UN's World Contraceptive Use (United Nations, 2020), the contraceptive prevalence rate rose from 19% in 1994 to 66% in 2010. However, the country has never had a population policy and the vision document assumed that the TFR would stabilize at the replacement level of 2.1. It came as a surprise to its Monarch and others when the TFR was reported around 1.7 in 2018–2019, making a call for reversal of the TFR to the replacement level to avoid social problems in the long run due to population aging.

All the five-year plans of **Nepal** since 1956 devoted space to population concerns and strategies to address the high fertility and mortality that prevailed in the country, including migration from rural up-hills to the Terai region near India) and population growth. Nepal, with a population of 21 million, achieved significant declines in mortality and fertility rates (the TFR declined from 6.3 children per woman in 1976 to 3.1 by 2006 and 2.3 in 2010–2015). Factors such as increase in age at marriage, use of injectables and female sterilisation and to some extent of abortion (although it was illegal until 2002) including out-migration of men to work outside the country all contributed to the reduction in the fertility (Karki & Krishna, 2008). Nepal prepared a formal population policy only in 2015. The policy aims at improving people's lives by

integrating population issues into development, ensuring people's reproductive health and reproductive rights as fundamental human rights and promoting gender equality in all sustainable development strategies. Given the rapid demographic changes in the last few decades as a result of transition from a high mortality and fertility regime, Nepal faces two challenges according to some scholars—increase in the elderly population and short-lived window of opportunity with favorable age structure for development in the coming decades (Amin et al., 2017). The population policy must address these challenges with appropriate instruments and actions.

With less than half a million population, **Maldives** is an Islamic Island country vulnerable to rising sea levels. It consists of a string of more than 1000 islands, the majority of which are not even inhabited. The country's robust economic growth has been due to tourism and fishing although both have been adversely affected by the COVID-19 epidemic in 2020. In the recent decades, Maldives' government has accorded high priority to social development and has spent financial resources on reaching healthcare through skilled service providers and education facilities to all. This has resulted in a rapid decline in fertility and mortality and an improvement in sanitation and availability of clean drinking water to people. In 2004, Maldives prepared a Population Policy with 26 key strategies in which

various governmental departments are to be involved. The objective of the Policy is to create synergies between the various sectoral interventions. The Population Policy focused on reproductive health and gender issues (May, 2016). In the Maldives, married couples have access to all methods of contraception, but prescriptions are required for some methods. Induced abortion is prohibited except for certified reasons, for which the consent of the spouse is required.

**Pakistan's** first three Five-Year Plans since 1960 introduced various strategies and family planning interventions to lower the population growth and address women's ill-health due to numerous pregnancies. However, beginning 1971 with a change in the leadership, supported by religious constituencies, the subsequent governments were lukewarm if not opposed to birth control programs. They relied largely on the international donor support for family planning commodities (Khan, 1996). Since then, Pakistan has desisted from having a population policy to guide its high growth, high fertility, and low uptake of contraception. Pakistan conducted a population census in 2017, 19 years after the previous census, and counted 208 million people, representing a population growth of almost 3% per annum between 1998 and 2017. Compared to the other countries in the Indian Subcontinent, Pakistan's population growth rate, estimates of infant mortality rate (57 per 1000 live births), and the total fertility rate (3.4 children per woman) are much higher. In 2014, Pakistan prepared Pakistan-2025 One Nation One Vision document stating that by 2025, it aims to eliminate poverty, increase literacy, and provide clean drinking water and universal healthcare to all its citizens. Further, it aims to lower population growth to 1% per year by 2025. However, except for a sentence "efforts to bring fertility rates to levels consistent with maternal health", there is not even a mention of the need or role of population policy in the document.

**Afghanistan** is one of the poorest countries in the world and is still gripped in a decades-long conflict. The Afghan society is deeply fragmented along sectarian, ethnic, and tribal lines. From an

estimated 15 million in 1980, Afghanistan's population increased to almost 36 million by 2019. Almost all the demographic and social indicators are dismal. According to the 2015 Afghanistan Demographic and Health Survey, infant mortality rate was 45 per 1000 live births, 54% of children of age 12–23 month did not receive the basic vaccinations, 84% of ever-married women in the age group 15–49 were illiterate, the total fertility rate was 5.3, and only 23% of women aged 15–44 reported using any contraceptive method (Central Statistics Organization, 2017). In 2016, UNFPA supported the Government of Afghanistan through the Ministry of Economy to develop its first National Population Policy. The aim of the policy was to bring about changes in the size, composition, and distribution of population for achieving sustainable development goals, reducing poverty, and improving the quality of life of all Afghans. However, the government has taken a cautious approach stating that it would be difficult to adopt a population policy without engaging religious scholars and the Ulema Council. In the traditional society of Afghanistan, religion shapes culture, traditions, and customs and influences government policies and programs. Changes in the area of population policy will take time.

**Myanmar** has suffered decades of authoritarian rule, self-isolation, and a long protracted civil war. Myanmar first formulated a draft national population policy in 1992 with a health-oriented approach that included: promotion of birth spacing to improve the health status of women and children; promotion of responsible reproductive behavior; improvement of male involvement in reproductive health; and addressing adolescent and youth needs. Later, a draft reproductive health policy was prepared and debated in 2001 and 2003, but was not officially adopted. Meanwhile Myanmar's population indicators showed that the total fertility rate steadily fell from a high of 5.9 children per woman in mid-1970s to 2.3 around 2000. The infant mortality rate declined from 113 to 60 per 1000 live births during the same period (Spoorenberg, 2013). Since not much is known about the internal turmoil that the country was going through during its

inward-looking phase, it is difficult to precisely identify the determinants of such changes. Both injectables and oral pills have been available both through the public and private facilities, helping women to use them to space their children. However, abortion is illegal in Myanmar and it is believed to be the leading cause of maternal mortality. Myanmar has once again in 2015 implemented a law (called the *Population Control Health Care Bill*) that requires mothers to have a three-year gap between the births of their children. While the legislation is viewed as violating the reproductive rights of women, there is an increasing concern that it is designed against the rights of certain religious and ethnic minorities.

**Bangladesh** is a densely populated country with approximately 165 million people according to the UN population estimates for 2019. After attaining Independence in 1971, when the country prepared the First Five-Year Plan (1973–1978) in 1976, Bangladesh identified population growth that was reaching around 3% per year as the foremost national problem. The TFR of Bangladeshi women was close to seven and the IMR estimated at 147 (Hossain et al., 2015). The Plan stated that controlling population growth through family planning was the first priority for the new country. The Bangladeshi Government trained female Family Welfare Assistants (FWAs) to provide door-to-door family planning services, that led to substantial increase in contraceptive use and a remarkable decline in fertility despite widespread poverty and illiteracy. The use of family planning methods increased from 8% in the mid-1970s to 54% in 2000. The total fertility rate came down to 3.2 children per woman in 2000 from 6.3 in 1975. In 2004, a new population policy was developed and approved with the objectives of strengthening the organizational structure of family planning activities, enhancing access to wider range of contraceptive methods, strengthening maternal and child healthcare, undertaking educational activities, involving community in family planning programs, and augmenting research and training activities. In 2012, the Ministry of Health and Family Welfare updated the family planning policy in light of new

data available from the 2011 Census. The need to achieve replacement level fertility has been emphasized along with increasing the age at marriage and focussing on inaccessible and backward regions of the country. Bangladesh is cited as a stellar example of a nation achieving remarkable improvements in its demographic variables in spite of widespread poverty and illiteracy.

**Iran** lowered its total fertility level from almost six children per woman in 1988 at the start of its family planning program, to around replacement level by 2000 including in rural areas—an achievement sometimes labelled as the Iranian miracle. In fact, concerned with high growth of population, Iran had launched a family planning program in 1967 as part of the government's development plan. However, after the Islamic revolution, the new pronatalist government viewed large population as an advantage and dismantled the family planning program. After the end of war with Iraq in 1988, the Iranian government launched the national family planning program. The socioeconomic and political contexts of changes in population policies before and after the 1979 Islamic Revolution have been examined with wealth of data from Censuses and fertility surveys by Abbasi-Shavazi et al. (2009) showing the rapid fertility transition in Iran. The government encourages couples to space births with a three- to four-year interval, discourages pregnancy among women younger than 18 and older than 35, and encourages couples to limit family to three children. In order to achieve these goals, access to free contraceptives was provided and population education became part of curriculum at all educational levels. The population growth rate decreased from 3% per annum in 1966 to 1.3 in 2011 and the TFR to 1.9. According to some analysts, Iran outpaced even China's decline in fertility, and did so without resorting to the coercion that featured in China's One-Child policy (Roudi-Fahimi, 2002). Despite Iran's successful family planning program, serious concerns now exist in Iran about potential socioeconomic consequences and a rapidly aging society. In 2014, a bill was introduced to increase fertility rates and prevent population decline that

outlawed voluntary sterilisation through government facilities. However, with huge increase in women achieving higher education, and increase in their age at marriage, it is very unlikely that Iranian women will have more than two or at the most three children.

**India** was the first country in the world to adopt a family planning program in 1952 because of the concern of a population size of 350 million that put pressure on the country's limited resources. India's Five-Year Plans beginning with the First Plan (1951–1956) set targets of lowering both the rate of population growth and its size, which could not be achieved. To achieve these goals, the Ministry of Family Welfare during 1960–1977 kept changing the goal posts, tightening the program, making it time-bound and incentive-based, and setting method specific contraceptive targets along with a special drive to promote sterilisation. India did not have a population policy until 2000 although efforts were made first in 1976 and in 1980 to set up a working group on population policy. Again in 1994, a draft policy was prepared (Visaria, 2001). The 1976 policy could not be tabled in the Indian Parliament during the national Emergency that was imposed during 1975–1977. The 1980 working group recommended a goal of net reproduction rate (NRR) of one by 1996. But it proved unrealistic and the effort to draft the policy was given up. The 1994 policy document was tabled in the Parliament but could not be approved. The policy underwent several revisions and finally the National Population Policy (NPP) was approved by both houses of the Parliament.

The NPP set several demographic goals for 2010, such as reducing the infant mortality rate (IMR) to 30 per 1000 live births, the maternal mortality ratio to less than 100 per 100,000 live births, the total fertility rate to 2.1, and the population size to 1.11 billion, achieving population stabilization by 2045. Given the country's size, the NPP also recommended the states to prepare their own population policies considering their situation and needs. A few states did prepare their policies mostly with the help of international donor agencies but by and large included in their documents the same goals stated in the national

policy. Hardly any state identified their own specific demographic concerns and suggested measures to address them. The fear of population 'explosion', India becoming the most population country on earth overtaking China, and an admiration for China having succeeded in controlling its growth rate is alive in India. In 2018, more than 100 parliamentarians demanded to impose a two-child norm and in 2019 '*The Population Regulation Bill*' was tabled in the Parliament. However, the civil society organizations are quite agile and have been voicing their views with hard evidence that the TFR has already reached 2.2 and that population growth is inevitable because of built-in growth momentum (Visaria & Ved, 2016; Nadimpally, 2019; The Wire, 2019).

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## Fertility Convergence in South Asia

As is evident from the discussion in the previous sections, the focus of most of the population policies has been on population size and the growth rates and to devise measures to affect them through managing fertility (Jones & Leete, 2002). For addressing mortality, some countries have enacted separate health policies. Migration and urbanization are only fleetingly addressed by most countries discussed in this chapter. Since fertility is the prime reason for a country's population growth, fertility transition and the factors that are associated with the transition have received attention by demographers in recent years. Analysis of cross-country data undertaken by a number of scholars have shown that there is convergence in fertility around replacement level post-2000 (de Silva & Tenreyro, 2017; Papagni, 2019; Wilson, 2011). The authors have noted that the convergence among countries has been happening regardless of markedly different levels of income, urbanization, education, or other factors. The countries where fertility was relatively high experienced faster decline compared to the countries where fertility was only moderately high, resulting in fertility converging to similar levels. This does raise a question: what has triggered the decline in fertility almost worldwide?

Can population policies with strong family planning programs adopted by several countries around the world, including those in Asia, explain the fertility convergence? We will address this issue in the next section. But before that, I will examine in the Asian countries under consideration in this chapter the evidence of convergence and the speed with which fertility declined where it was relatively high to catch up with countries where the decline had begun early, and so the decline was moderate in the last two or three decades.

At the beginning of the current decade of the twenty-first century, out of 25 Asian countries, with the exception of four countries (Tajikistan with a TFR of 3.6, Afghanistan with a TFR of 4.6, Pakistan with a TFR of 3.5 and Timor-Leste with a TFR of 4.1), the TFRs ranged between 2 and 3 children per woman in all the other countries. During 1975–80, fertility was moderately high in most of these countries at around 5–7 children per woman. As shown below in Table 12.4, in Central Asia, the current TFR ranges between 2.4 and 3.0; suggesting a difference of just about half a child in four out of five countries. That was not the case in 1975–80, when the difference was much larger. The exception is Tajikistan where the current TFR is estimated to be 3.6. Tajikistan is the poorest country in Central Asia with a history of civil war between ethnic groups. In spite of issuing a Concept of State Demographic Policy, it has not been able to fund the tasks listed in the policy and they have remained as desired goals on paper.

In Southeast Asia, Timor-Leste with one of the highest TFR of 4.1 has suffered from decades of violence and is trying to build its infrastructure and improve its economy since becoming

Independent in 2002. However, being a predominantly catholic country, the Church's influence on its population is strong. To some extent, the influence of Catholic Church is also evident in the Philippines although with the spread of female education and exposure to other countries (especially due to migration of large number of women as domestic helpers to developed countries), fertility has started falling quite rapidly post 2000 in the Philippines. If one considers Singapore and Timor-Leste as outliers, both of which are very small countries with barely 7% of Southeast Asia's population, then the current TFRs in the region range between 1.5 and 2.7, suggesting that convergence is somewhat slow. At the higher end are Laos and Cambodia with TFRs of 2.7 and 2.6, respectively. As noted earlier, both these countries experienced years of isolation, internal power struggle, and remained poor and dependent on external aid until 1990. In the last two decades, they have made strident efforts to come out of the effects of their violent past. Fertility began to fall in both Laos and Cambodia quite rapidly since 1995 as shown in Table 12.5. There is a strong likelihood that the momentum will continue and these two countries in the next decade or so will attain fertility level closer to other countries in the region. Thailand is an interesting case where the downward slide in fertility has not yet slowed down. With an estimated TFR of 1.5, there is now a concern about how to arrest the decline and, if possible, raise it with pronatalist measures.

Afghanistan, in the South Asian region, shares a long border with Tajikistan. Both countries are staunchly Muslim. Afghanistan also has had turbulent history of civil war with heavy casualty, foreign rule, and unstable government. Both societies are fragmented along ethnic and tribal

**Table 12.4** Total fertility rate in Central Asian countries, 1975–2020

Country/period	1975–80	1995–2000	2015–2020
	Total fertility rate		
Tajikistan	5.90	4.88	3.61
Turkmenistan	5.60	4.03	2.79
Uzbekistan	5.46	3.95	2.43
Kyrgyzstan	4.59	3.64	3.00
Kazakhstan	3.23	2.55	2.76

Source: United Nations (2019)

**Table 12.5** Total fertility rate in Southeast Asian countries, 1975–2020

	1975–80	1995–2000	2015–2020
Lao People’s Democratic Republic	6.15	4.81	2.70
Viet Nam	5.50	2.25	2.06
Philippines	5.46	3.90	2.58
Cambodia	5.42	4.25	2.52
Myanmar	5.15	2.95	2.17
Timor-Leste	5.00	5.80	4.10
Indonesia	4.73	2.55	2.32
Brunei Darussalam	4.45	2.51	1.85
Malaysia	4.20	3.13	2.01
Thailand	3.92	1.77	1.53
Singapore	1.84	1.57	1.21

Source: United Nations (2019)

**Table 12.6** Total fertility rate in South Asian countries, 1975–2020

Country/period	Total fertility rate		
	1975–80	1995–2000	2015–2020
Afghanistan	7.45	7.48	4.56
Maldives	6.85	5.16	1.88
Bangladesh	6.63	4.06	2.05
Pakistan	6.60	5.96	3.55
Bhutan	6.60	5.00	2.00
Iran (Islamic Republic of)	6.28	3.70	2.15
Nepal	5.80	4.97	1.93
India	4.97	3.83	2.24
Sri Lanka	3.61	2.38	2.21

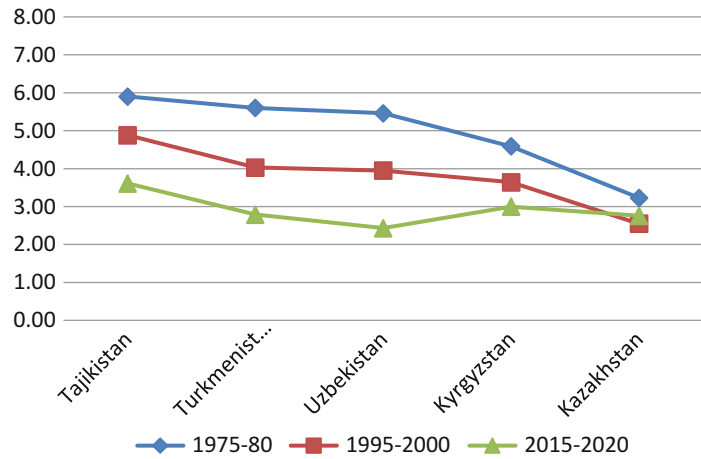
Source: United Nations (2019)

lines, and most resources are spent on warfare and not on human welfare. Their large rural population have little access to most of the basic amenities including health services. In South Asia, Pakistan is another country with a relatively high TFR of 3.6. Pakistan’s leadership has been, for most of the time in the past 30 years, supported by religious constituencies that have opposed family planning programs, even though the surveys have shown that Pakistani women do not desire numerous children. Barring these two South Asian countries, the current TFRs in the remaining seven countries ranges in a very narrow band of 1.9 and 2.2, as shown in Table 12.6. In all the countries, the TFRs fell from more than six to close to replacement level or even a notch below it, in 35–40 years. In Sri Lanka, the fertility decline had started earlier than elsewhere. During 1975–1980, its TFR was only 3.6 and in the past few decades, the pace of decline has been quite slow.

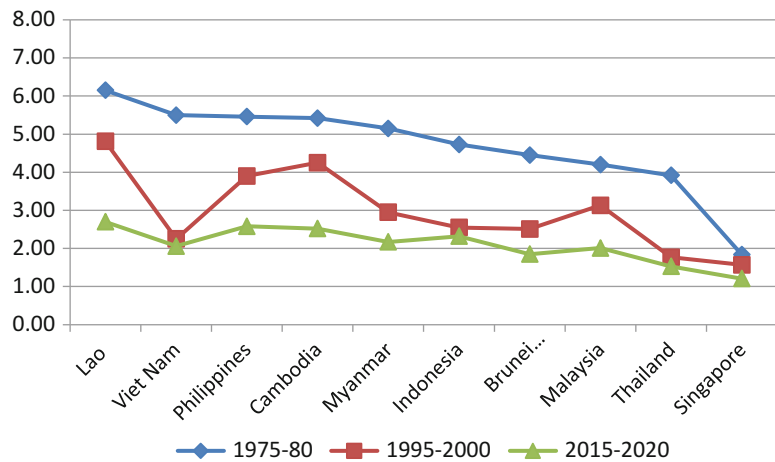
As shown, there are exceptions but then exceptions prove the rule. The evident convergence is depicted in the three Figures below where the onset, pace of fertility decline, and the levels at three time-points are shown in a somewhat unconventional way separately for the three Asian regions under discussion. The countries are arranged in a descending order of their TFRs in the initial period of 1975–1980. The pace of decline from the initial period to the next two time periods of 1995–2000 and 2015–2020 can be viewed in their TFR values below the initial value.

Figure 12.1 for Central Asian countries highlights three points. One, in 1975–1980 the TFRs ranged between close to six in Tajikistan to 3.2 in Kazakhstan as evident from the blue line suggesting a large variation. Two, the pace of fertility decline in countries where it was relatively high was faster compared to the countries

**Fig. 12.1** Total fertility rates for countries of Central Asia. (Source: United Nations, 2019)



**Fig. 12.2** Total fertility rates for Southeast Asia. (Source: United Nations, 2019)



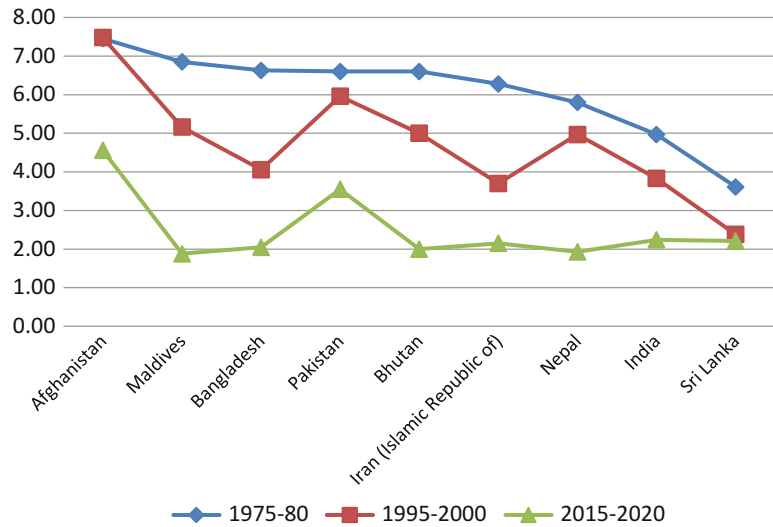
where it was relatively low as evident from the figures for 1995–2000 depicted by a red line. The process of convergence had begun. Three, the bottom green line for 2015–2020 is approaching a straight line indicating that the variations between the countries have narrowed down while approaching the lower level of the TFRs. The distance between the countries is narrower in the recent period compared to the initial period shown in Fig. 12.1.

From Fig. 12.2 for Southeast Asia, we have left out the data for Timor-Leste because it is a very special case where fertility increased between 1975 and 1995 and it is clearly an

outlier. As discussed earlier, and evident from Fig. 12.2, in Laos, Cambodia and to a certain extent in the Philippines, fertility decline picked up momentum after 1995. Viet Nam, on the other hand, experienced fastest decline in TFR from 5.5 in 1975 to 2.2 by 1995 or in 20 years. While there is convergence evident in this region, fertility in Thailand and Singapore has reached quite low levels and has been a concern for the governments of the two countries.

Figure 12.3 for South Asia shows that fertility decline in Afghanistan and Pakistan commenced only after 1995. As evident in the Figure, the TFR values of Afghanistan for 1975–1980 and

**Fig. 12.3** Total fertility rates for countries of South Asia. (Source: United Nations, 2019).



1995–2000 are almost the same. In Pakistan, the two values are very close to each other, indicating only a slight downward change. In the remaining seven countries, the pace of fertility decline was somewhat slow during 1975–2000 but it picked up and TFRs reached 1.9 in the recent period. Barring Afghanistan and Pakistan, the bottom green line is virtually a straight line around a TFR of two indicating a remarkable convergence. In about 40 years, total fertility rates in Bangladesh, Iran, Maldives, and Bhutan fell from more than six children per woman to around two; an achievement similar to what some of the Southeast Asian countries experienced a decade earlier.

### What Explains the Convergence in Fertility?

As shown in the preceding section, barring a few countries, total fertility has not only fallen but has converged within a narrow range of 1.8–2.2 in countries at widely different levels of economic development, urbanization, education, etc. Fertility has fallen in both democratic and autocratic regimes. Equally important to note is that it is only since about 1995 that the rate of decline in

fertility among late starters started exceeding the rate of decline among early starters, implying that the evident convergence began only 20–25 years ago (Dorius, 2008; see also Government of India, 2017). Efforts have been made to unravel the reasons for the decline. Dyson has argued that fertility has been falling because of sustained mortality decline. When populations are confronted with a major fall in the death rate, they cannot sustain a TFR of five or six live births (Dyson, 2001). With some time-lag, fertility has to respond especially when a majority of children born survive to adulthood. Dyson also argues that social, cultural, and economic factors influence the *timing* and *speed* of the fertility decline. But the remote causal force behind all fertility transitions is mortality decline that lowers the demand for large families.

Some scholars have argued that fertility has fallen mainly due to improvements in women's human capital (Hosseini, 2010). There is credence in this argument because large data sets from the UN and other sources have demonstrated a strong negative relationship between female education and fertility level and a positive relationship between infant mortality and fertility level. Equally important has been the income effect: as the household income or wealth



increases, fertility falls. Since most of the countries have had some population policies and programs in place, it is equally important to understand whether the policies along with promotion of fertility control measures also have a role in accelerating the decline in fertility.

It must be taken note of that population policies and programs that most countries launch are often accompanied by policies in other sectors such as health, education, sanitation, water, etc. The programs implemented by the other sectoral policies, for example, improve women's reproductive health, reduce child mortality with universal vaccination campaigns, and make schooling universal for children. These influence the decision process about the need for large families. Population policies along with advances in contraceptive technology make easy for couples the decision to limit the family size. In an experiment undertaken in the villages of the Matlab area of Bangladesh where family planning program was started in 1977 to increase contraceptive use, the women benefited from a host of other interventions such as vaccination and diarrhoeal control program thereby improving survival chances of their young children. By offering a wide range of maternal and child health (MCH) services in experimental villages, the program demonstrated a significant uptake of contraceptive use compared to the control villages (Joshi & Schultz, 2007).

Researchers de Silva and Tenreyro (2017) have identified two elements that are common to population programs of all the countries that have implemented them in the last 30–40 years. These are: (a) promoting an increase in contraceptive supply and information; and (b) creating public campaigns aimed at reversing pronatalist attitudes and establishing and promoting new small-family norm. The international agencies and the UN organizations like UNFPA have played an important role in helping governments of many less developed countries in Asia to draft their population policy or program statements, helping in procuring contraceptive supplies, designing information materials on the advantages of small family, and also supporting

academic research in many cases. Thus, whether the family planning programs are initiated by international organizations or run by non-profit, non-governmental organizations, or with full involvement of government is not of much importance in lowering fertility.

As is evident from the previous discussion, the population programs differed across countries. Within countries, the emphasis on promoting a particular method or methods of family planning shifted depending partly on responses from potential clients and a host of other factors. Local culture and religion in some settings became important factors. For example, in Muslim-majority countries reversible methods of contraception and not sterilization – male or female – are preferred and promoted by their programs. On the other hand, Hinduism followed by the majority in India has no such religious injunctions and thus its family planning program relied on vasectomy in the 1970 and subsequently on female sterilization by incentivising it. Yet, fertility control initiated by the governments of the countries in Asia either through policy statements or program measures have generated a momentum of small family norm such that a reversal in this is most unlikely in most countries. Couples regardless of their religion, class, creed, economic, or social status do not desire more than two children. Whether they are able to realise their desired goal or not is influenced among other factors by the availability of, and access to, family planning services and commodities. If the access and implementation issues are addressed, fertility control needs not be a major concern of the population policies. Barring a handful of countries in the Asian region that are recent entrants and initiators of demographic change, fertility decline has attained a momentum facilitated by other improvements such as a decline in infant and child mortality, a rise in life expectancy, an increase in urbanization, etc. In the few countries where fertility has yet to fall in line of their neighbors, the small family norm is in the calculus of most couples and therefore vigorous population policies and making available a range of contraceptives will facilitate the desired change.

## What Next?

Population policies do matter. They need to shift focus from sustained decline in fertility to other emerging concerns. The emergent issues are the changing age structure of most countries in the coming decades, providing work and employment in the immediate future to the bulging youth, and addressing the rapid increase in the share and number of old people in the population. Also, migration of people both within countries from rural to urban areas and across countries needs attention (McNicoll, 2005).

The declining fertility rates are, for a period, beneficial for economic growth because as fertility declines, the proportion of children in the population falls and the proportion of the population of working-age increases, resulting in a lower young dependency ratio (defined as the number of children aged 0–14 years per 100 persons of working ages 15–64 (see Bloom & Finlay, 2009; Hussain et al., 2006). The large workforce of countries like Thailand and Indonesia in the Southeast Asian region contributed to their economies and thereby created a window of opportunity for increased savings and investment for further economic growth at a time when relatively fewer resources were required for investment in education and to meet the other needs of young dependents. At the same time, these countries increased their skilled labor force by providing universal primary schooling and better-quality primary and secondary education (Birdsall et al., 1993). However, a country can reap the benefits of increased production and lower the costs associated with the decreasing proportion of dependents only if jobs or employment opportunities are available for the increasing population of working-age. The majority of the countries in the Asian region will have to create a conducive environment for the young through skill training, anticipating the demand for certain kind of work through appropriate policy instruments.

On the other hand, some of the South East Asian countries like Singapore and Thailand that are experiencing aging of their work force and that are considering pronatalist policies to raise

birth rates, may address the issue by raising the retirement age of their workers, providing social protection through policy instruments as well as allowing international migration of young skilled workers from other countries. Women in Vietnam, for example, currently retire at age 55, or 5 years earlier than men. With the rapidly changing economic and social context, the need for closing the retirement gender gap is growing stronger in Vietnam. However, since the current pension policy is advantageous for women retiring at 55, there is resistance especially from some women to increase the retirement age (Castel, 2009). With some foresight and appropriate actions, such issues should become part of population policies.

In many countries of Asia, the percentage of the population in the age group 65 and over is still not very high but with the changing age structure both the share and the number of old people is going to rapidly increase. The process of aging will have multiple and wide-ranging social and economic implications for the countries. Apart from the healthcare cost, social support and financial security that are likely to be faced by the old people, and the feminisation of the elderly population also will need to be addressed. At older ages, women tend to live longer than men and at the same time are more disadvantaged as they have much less education, work experience, financial support, and assets than men in many patriarchal societies. Countries will need strong policy measures and not just token widow pension system for the elderly women.

Relaxation of the restrictive immigration policies pursued by some countries that are rapidly shrinking in population size and falling fertility might help in increasing the birth rate because the immigrants typically tend to be young and in childbearing ages. It would also reduce the labor shortages that many countries are facing or will face in not-too-distant future. Therefore, migrants would form part of the active labor force and contribute to the productivity of the economy. However, each country or region tends to adopt measures or adjust to the changing age structure of the labor force by taking into account their specific socio-political and

economic situations and both the sending and receiving countries would need to deal with socio-political and cultural issues related to international migration.

Equally important is the strong possibility that favorable migration policies can help attract immigrants but will have little success in making them return to their country of origin. Migration policies are not very successful in preventing illegal immigration. Therefore, regularization of

those who are “undocumented” remains a controversial subject in many countries. The governments will have to weigh and reconcile conflicting individual and national interests under the best-accepted rules and political processes.

## Annexes

**Table 12.7** Population of South Asian countries and annual growth rates, 1980–2020 (Figures in ‘000 s)

Region/country	Population in 1980	Population in 2000	Population in 2020	Av. Annual growth rate 1980–2000	Av. Annual growth rate 2000–2020
<b>Central Asia</b>	<b>41,088</b>	<b>55,346</b>	<b>74,339</b>	<b>1.74</b>	<b>1.72</b>
Kazakhstan	14,796	14,923	18,777	0.04	1.29
Kyrgyzstan	3611	4921	6524	1.81	1.63
Tajikistan	3905	6216	9538	2.96	2.67
Turkmenistan	2877	4516	6031	2.85	1.68
Uzbekistan	15,899	24,770	33,469	2.79	1.76
<b>South Asia</b>	<b>939,271</b>	<b>1,456,569</b>	<b>1,940,370</b>	<b>2.75</b>	<b>1.66</b>
Afghanistan	13,357	20,780	38,928	2.78	4.37
Bangladesh	79,639	127,658	164,689	3.01	1.45
Bhutan	407	591	772	2.26	1.53
India	698,953	1,056,576	1,380,004	2.56	1.53
Iran	38,650	65,623	83,993	3.49	1.40
Maldives	158	279	541	3.83	4.70
Nepal	15,016	23,941	29,137	2.97	1.09
Pakistan	78,054	142,344	220,892	4.12	2.76
Sri Lanka	15,036	18,778	21,413	1.24	0.70
<b>Southeast Asia</b>	<b>357,642</b>	<b>525,008</b>	<b>668,620</b>	<b>2.34</b>	<b>1.37</b>
Brunei	194	333	437	3.58	1.56
Cambodia	6694	12,155	16,719	4.08	1.88
Indonesia	147,448	211,514	273,524	2.17	1.47
Laos	3258	5324	7276	3.17	1.83
Malaysia	13,798	23,194	32,366	3.40	1.98
Myanmar	34,224	46,720	54,410	1.83	0.82
Philippines	47,358	77,992	109,581	3.23	2.03
Singapore	2412	4029	5850	3.35	2.26
Thailand	47,374	62,953	69,800	1.64	0.54
Timor	600	884	1318	2.37	2.45
Vietnam	54,282	79,910	97,339	2.36	1.09
<b>Total of three regions</b>	<b>1,338,001</b>	<b>2,036,923</b>	<b>2,683,329</b>		

Source: United Nations (2019)

**Table 12.8** Total fertility rates for South Asian countries, 1975–2020

Total fertility rates					
Region/ country	TFR 1975–1980	TFR 1995–2000	TFR 2015–2020	% change bet. 1975–1980 & 1995–2000	% change bet. 1995–2000 & 2015–2020
<b>Central Asia</b>	<b>4.51</b>	<b>3.58</b>	<b>2.75</b>	<b>-0.93</b>	<b>-0.83</b>
Kazakhstan	3.23	2.55	2.76	-0.68	0.21
Kyrgyzstan	4.59	3.64	3	-0.95	-0.64
Tajikistan	5.9	4.88	3.61	-1.02	-1.27
Turkmenistan	5.6	4.03	2.79	-1.57	-1.24
Uzbekistan	5.46	3.95	2.43	-1.51	-1.52
<b>South Asia</b>	<b>5.31</b>	<b>4.05</b>	<b>2.4</b>	<b>-1.26</b>	<b>-1.65</b>
Afghanistan	7.45	7.48	4.56	0.03	-2.92
Bangladesh	6.63	4.06	2.05	-2.57	-2.01
Bhutan	6.6	5	2	-1.6	-3
India	4.97	3.83	2.24	-1.14	-1.59
Iran	6.28	3.7	2.15	-2.58	-1.55
Maldives	6.85	5.16	1.88	-1.69	-3.28
Nepal	5.8	4.97	1.93	-0.83	-3.04
Pakistan	6.6	5.96	3.55	-0.64	-2.41
Sri Lanka	3.61	2.38	2.21	-1.23	-0.17
<b>Southeast Asia</b>	<b>4.81</b>	<b>2.69</b>	<b>2.22</b>	<b>-2.12</b>	<b>-0.47</b>
Brunei	4.45	2.51	1.85	-1.94	-0.66
Cambodia	5.42	4.25	2.52	-1.17	-1.73
Indonesia	4.73	2.55	2.32	-2.18	-0.23
Laos	6.15	4.81	2.7	-1.34	-2.11
Malaysia	4.2	3.13	2.01	-1.07	-1.12
Myanmar	5.15	2.95	2.17	-2.2	-0.78
Philippines	5.46	3.9	2.58	-1.56	-1.32
Singapore	1.84	1.57	1.21	-0.27	-0.36
Thailand	3.92	1.77	1.53	-2.15	-0.24
Timor	5	5.8	4.1	0.8	-1.7
Vietnam	5.5	2.25	2.06	-3.25	-0.19

Source: Same as Annex Table 12.7

## References

- Abbasi-Shavazi, M. J., McDonald, P., & Hosseini-Chavoshi, M. (2009). *The fertility transition in Iran: Revolution and reproduction*. Springer.
- Abdullah, R. (1993). Changing population policies and lives of women in Malaysia. *Reproductive Health Matters*, 1, 67–77.
- Ahmad, N. (2018). The socioeconomic context of fertility decline and preferences in Brunei. In S. Gietel-Basten, J. Casterline, & M. K. Choe (Eds.), *Family demography in Asia: A comparative analysis of fertility preferences* (pp. 52–67). Edward Elgar Publishing.
- Amin, S., Bajracharya, A., Bongaarts, J., Chau, M., & Melnikas, A. J. (2017). *Demographic changes of Nepal: Trends and policy implications* (Policy Brief). Government of Nepal, Nepal Planning Commission.
- Armand, F., O'Hanlon, B., Seligman, B., Sarley, D., Makarova, T., Bates, J., & Pandit, T. (2006). *Contraceptive Security in the Central Asian Republics Kazakhstan, Kyrgyzstan, and Tajikistan*. Private Sector Partnerships-One Project, DELIVER Project, and USAID.
- Barbieri, M., Blum, A., Dolkigh, E., & Ergashev, A. (1996). Nuptiality, fertility, use of contraception, and family policies in Uzbekistan. *Population Studies*, 50(1), 69–88.
- Belton, S., Whittaker, A., Fonseca, Z., Wells-Brown, T., & Paise, P. (2009). Attitudes towards the legal context of unsafe abortion in Timor-Leste. *Reproductive Health Matters*, 17(34), 55–64.
- Birdsall, N. M. et al. (1993). *The East Asian miracle: Economic growth and public policy. Main report* (A World Bank Policy Research Report). Oxford University Press. See <http://documents.worldbank.org/curated/en/>

- [975081468244550798/Main-report](https://doi.org/10.1016/j.econpol.2020.101419). Accessed 10 July 2020.
- Bloom, D. E., & Finlay, J. E. (2009). Demographic change and economic growth in Asia. *Asian Economic Policy Review*, 4(1), 45–64.
- Bukharbaeva, G. (2005). *Birth Control by Decree in Uzbekistan* (IWPR's Reporting Central Asia service, RCA No. 372). Institute for Women's Policy Research.
- Castel, P. (2009). *Women's retirement age in Vietnam: Gender equality and sustainability of the social security fund*. World Bank Group.
- Central Statistics Organization. (2017). *2015 Afghanistan Demographic and Health Survey (AfDHS) key findings*. Central Statistics Organization (CSO), Ministry of Public Health (MoPH), and ICF.
- de Silva, T., & Tenreyro, S. (2017). Population control policies and fertility convergence. *Journal of Economic Perspectives*, 31(4), 205–228.
- Dorius, S. F. (2008). Global demographic convergence? A reconsideration of changing intercountry inequality in fertility. *Population and Development Review*, 34(3), 519–537.
- Dorjee, T., & Spoorenberg, T. (2016). Fertility transition in Bhutan: An assessment. *Population*, 71(4), 659–672.
- Dyson, T. (2001). A partial theory of world development: The neglected role of demographic transition in the shaping of modern world. *International Journal of Population Geography*, 7(2), 69–90.
- Government of India. (2017). *Income, health and fertility: Convergence puzzles* (Vol. 1, Ch. 10, pp. 229–246). Ministry of Finance, Department of Economic Affairs, Economic Division.
- Guest, P., & Jones, G. W. (1996). Policy options when population growth slows: The case of Thailand. *Population Research and Policy Review*, 15(2), 109–130.
- Herrin, A. N. (2003). *Lack of consensus characterizes Philippine population policy* (Policy Notes No. 2003-03). Philippine Institute for Development Studies.
- Hossain, M. B., et al. (2015). The demographic transition and its consequences. In *The impact of the demographic transition on socioeconomic development in Bangladesh: Future prospects and implications for public policy* (pp. 16–47). United Nations Population Fund.
- Hosseini, H. (2010). *Women's human capital and convergence in Asian countries*. Paper presented at the European Population Conference, Vienna, Austria, September, 1–4, 2010.
- Hull, T. H. (2002). Caught in transit: Question about the future of Indonesian Fertility. In *UNDESA expert group meeting on completing the fertility transition* (pp. 409–424). United Nations, Department of Economic and Social Affairs, Population Division.
- Hussain, A., Cassen, R., & Dyson, T. (2006). Demographic transition in Asia and its consequences. *Institute of Development Studies. IDS Bulletin*, 3(3), 79–87.
- Jones, G., & Leete, R. (2002). Asia's family planning programs as low fertility is attained. *Studies in Family Planning*, 33(1), 114–126.
- Joshi, S., & Schultz, T. P. (2007). *Family planning as an investment in development: Evaluation of a program's consequences in Matlab, Bangladesh* (Economic Growth Center discussion paper number 951). Yale University. See <http://www.econ.yale.edu/~egcenter/research.htm>. Accessed 7 Aug 2020.
- Karki, Y. B., & Krishna, R. (2008). *Factors responsible for the rapid decline of fertility in Nepal – An interpretation. Further analysis of the 2006 Nepal demographic and health survey*. Macro International.
- Khan, A. (1996). Policy-making in Pakistan's population programme. *Health Policy and Planning*, 11(1), 30–51.
- Knodel, J., Chamrathirong, A., & Debavalya, N. (1987). *Thailand's reproductive revolution*. The University of Wisconsin Press.
- Marat, E. (2009). *Labor migration in Central Asia: Implications of the global economic crisis*. Central Asia-Caucasus Institute & Silk Road Studies Program. A Joint Transatlantic Research and Policy Center. Johns Hopkins University-SAIS. See <https://web.worldbank.org/archive/website01419/WEB/IMAGES/0905MIGR.PDF>. Accessed 17 Jan 2022.
- May, J. F. (2016). *Maldives' population dynamics: Policy prospects for human growth and opportunity*. UNFPA Maldives Country Office and National Bureau of Statistics.
- McNicoll, G. (2005). *Policy lessons of the East Asian demographic transition*. Paper prepared at the XXVth International Population Conference of the International Union for the Scientific Study of Population, Tours, France, 18–23 July.
- Nadimpally, S. (2019). 'Population explosion': The myth that refuses to go. *The Wire*. August 30, 2019.
- Papagni, E. (2019). *Fertility transitions in developing countries: Convergence, timing, and causes* (FEEM working paper no. 29). Fondazione Eni Enrico Mattei. Available at SSRN: <https://ssrn.com/abstract=3522996> or <https://doi.org/10.2139/ssrn.3522996>.
- Permana, I. B., & Westoff, C. F. (1999). *The two-child norm in Indonesia*. National Family Planning Coordinating Board/Macro International Inc. See <https://dhsprogram.com/pubs/pdf/FA28/FA28.pdf>. Accessed 17 Jan 2022.
- Pham, B. N., et al. (2013). The evolution of population policy in Viet Nam. *Asia Pacific Population Journal*, 27(2), 61–75.
- Population Reference Bureau. (2009). *2009 world population data sheet*. PRB.
- Population Reference Bureau. (2019). *2019 world population data sheet*. PRB.
- Roudi-Fahimi, F. (2002). *Iran's family planning program: Responding to a nation's needs*. PRB MENA Policy Brief. Population Reference Bureau.

- Royal Government of Cambodia. (2016). *National population policy 2016–2030*. Royal Government of Cambodia.
- Spoorenberg, T. (2013). Demographic changes in Myanmar since 1983: An examination of official data. *Population and Development Review*, 39(2), 309–324.
- Starr, S. F., Engvall, J., & Cornell, S. E. (2016). *Kazakhstan 2041: The next twenty-five years*. Silk Road Paper, Central Asia-Caucasus Institute & Silk Road Studies Program. A Joint Transatlantic Research and Policy Center. Johns Hopkins University-SAIS. See [http://silkrroadstudies.org/resources/Kazakhstan\\_2041-1.pdf](http://silkrroadstudies.org/resources/Kazakhstan_2041-1.pdf). Accessed 17 Jan 2022.
- The Wire. (2019). Civil society slams renewed push for ‘two-child’ norm in Rajya Sabha. *The Wire*, July 16.
- United Nations. (2014). *Abortion policies and reproductive health around the world*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2019). *World population prospects 2019. Vol. 1: Comprehensive tables* (Online Ed., Rev. 1). Department of Economic and Social Affairs, Population Division.
- United Nations. (2020). *World contraceptive use 2020*. Department of Economic and Social Affairs, Population Division.
- Viet Nam News. (2019). *Population Policies needed to shift the birth rate*. October 2. <https://vietnamnews.vn/opinion/536254/population-policies-needed-to-shift-the-birth-rate.html>. Accessed 3 Aug 2020.
- Visaria, P. (2001). Population policy. *India Seminar 500 – Through the Decades*, 1–29.
- Visaria, L., & Ved, R. R. (2016). *India’s family planning programme: Policies, practices and challenges*. Routledge.
- Wilson, C. (2011). Understanding global demographic convergence since 1950. *Population and Development Review*, 37(2), 375–388.
- Wong, B., & Yeoh, B. S. A. (2003). *Fertility and the family: An overview of pro-natalist population policies in Singapore* (Asian Meta Centre Research Paper Series No. 12). National University of Singapore.



# Population Policies in East Asia and Oceania

# 13

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## Introduction

Unprecedented shifts in population size and structure have occurred in East Asia and Oceania in the second half of the twentieth century and early part of the 21st.<sup>1</sup> By 2020, this region was

<sup>1</sup> In this chapter, we use the definition of East Asia and Oceania as specified in the United Nations World Population Prospects Fertility Database of 2019. These territories

are China, Hong Kong SAR of China, Macao SAR of China, Taiwan Province of China, Democratic People's Republic of Korea, Japan, Mongolia, and Republic of Korea in East Asia, and Australia, New Zealand, Fiji, New Caledonia, Papua New Guinea, Solomon Islands, Vanuatu, Guam, Kiribati, Federated States of Micronesia, French Polynesia, Samoa, and Tonga in Oceania. In this chapter, shorthand versions of territory names are applied. No political statement is being made by the use of the names of territories in this chapter.

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home to some of the world's lowest total fertility rates (TFRs) in several post-industrialized territories in East Asia. In South Korea, for example, TFR dropped to under one child per woman since 2018. Numerous territories in the region, such as South Korea, are characterized by long life expectancy, high rates of tertiary education, and rapid aging. On the other hand, the fertility transition is still underway in several Pacific Island states, where population growth continues apace. Low levels of literacy, high infant mortality rates, and malnutrition remain challenges for human development in territories such as Papua New Guinea (PNG).

In this chapter, we review the wide-ranging population policies which both accompanied and drove these population changes from the 1950s up to the present day. In the section “[Population policies: A historical overview from 1950 to 2000](#)”, we provide a historical overview of population policies from the conclusion of World War II to roughly the turn of the Millennium. In all territories, population policies during this period mostly focused on fertility rates and family-planning. China's population control policies during this period attracted possibly the most global attention, for their scope, restrictive strength, and highly coercive nature—most notably the One-Child policy of 1979. In post-industrialized East Asia, with the main goal of paving the path for economic development, restrictive (and at times, coercive) policies were introduced that were aimed at bringing down fertility levels and managing the population. In Australia and New Zealand, population policy was marked by consistently high levels of immigration, while the transition to low fertility was slower and less severe than in many territories in East Asia. Finally, in several Pacific island territories, the fertility transition remained incomplete and fertility rates stagnated, with low economic development and lack of contraceptive access in rural areas being key problems. In the next section, “[Recent population policies and the legacy of foregoing policies](#)”, we review fertility and aging policies from 2000 until the present day, focusing in particular on the switch to pronatalist or “family-friendly” policies in post-

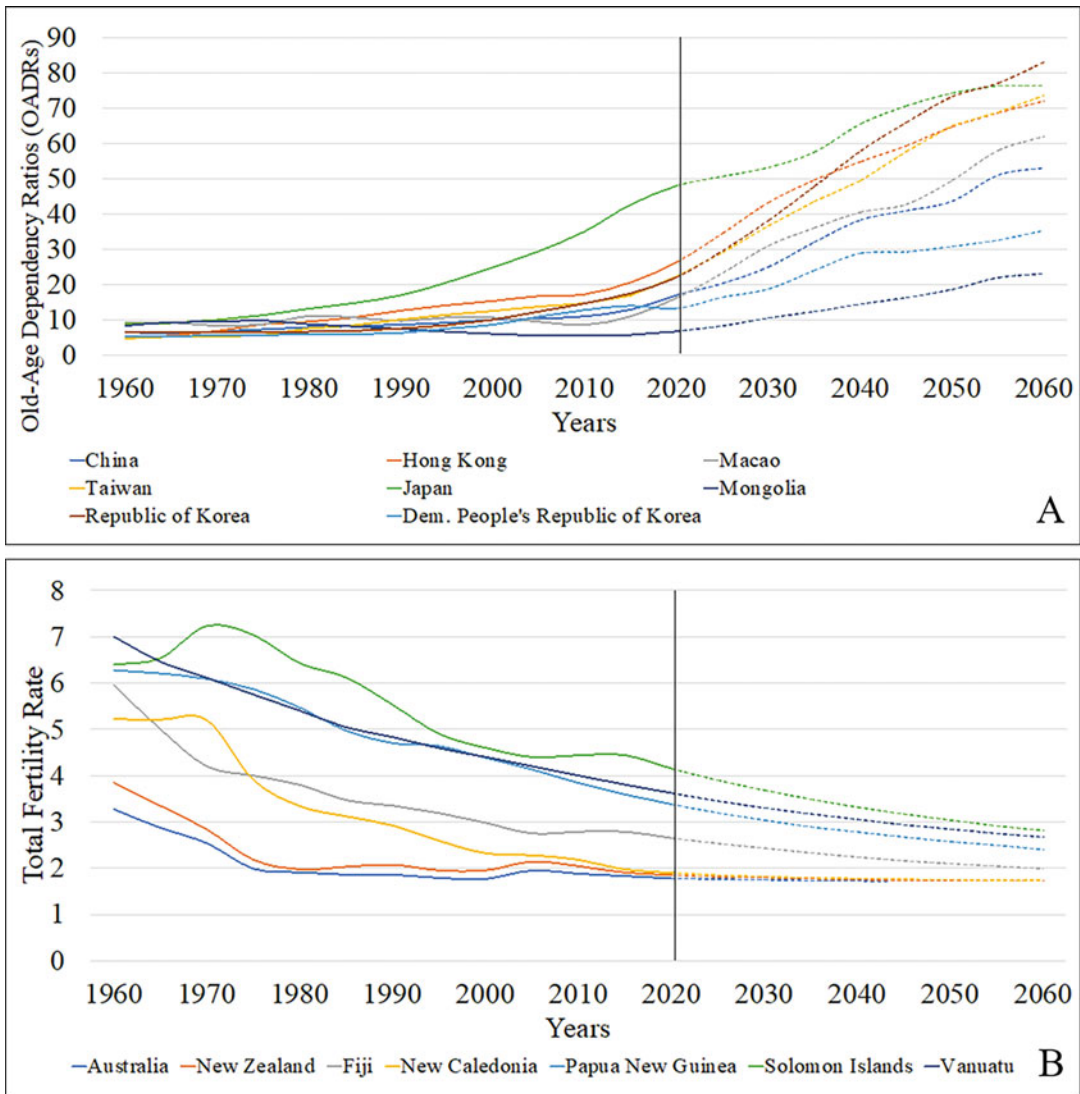
industrialized territories in response to under-replacement fertility rates. In much of East Asia, the transition to later childbearing and lower family sizes that accompanied population control policies has been followed by sustained ultra-low fertility and concerns about the rapidly aging population (see Fig. 13.1). In Mongolia, however, the demographic transition occurred much later, and after reaching the replacement rate in 2005, fertility has rebounded, possibly driven in part by financial benefits which enable larger family sizes. In the following section of the chapter, “[Reappraisal of recent population policies: Aging, human capital, and migration](#)”, we discuss a “reappraisal” of aging and population change in the region, focusing on recent changes in human capital and development, migration, and population aging. We review policies related to labor markets, pensions, and long-term care in aging territories, and discuss issues related to human capital and education across the region. We also discuss recent migration policies and their importance for population structure, focusing on the unique features of internal migration within China, immigration policies in Australia and New Zealand, and recent experiences of climate-related migration. In the final and concluding section “[Population policies in East Asia and Oceania](#)”, we look “forward” and discuss the key focus areas for future population policies.

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### **Population Policies: A Historical Overview from 1950 to 2000**

In this section, we provide a historical overview of population policies from 1950 to roughly 2000, starting with East Asia. Japan was the first territory in East Asia to witness the transition to lower fertility, which had been in motion even before the onset of World War II and which resumed following a short-lived baby boom after World War II (see Fig. 13.1). The transition to lower fertility and later childbearing occurred across all other East Asian territories in the second half of the twentieth century, accompanied by population control policies and family planning





**Fig. 13.1** Total fertility rates across East Asia and Oceania, 1960–2060 (a) Major territories in East Asia, (b) Australia, New Zealand, and Major Territories in Melanesia, (c) Major Territories in Micronesia, and (d) Major Territories in Polynesia. (Notes: (1) the projection

of the total fertility rates is the UN Medium variant projection, (2) the dashed lines are the projection figures, and (3) the territory selection is based on the territories detailed in the UN World Population Prospects 2019. Source: United Nations, 2019)

programs across the region. We then discuss population and family policies in Australia and New Zealand, where fertility declined at a slower pace during this period and which were marked by high levels of immigration. In the Pacific Islands, family-planning and economic development programs were put into place in this period, with varying levels of success.

### East Asia

As in much of the world, the fertility transition in Japan, Taiwan, and South Korea has been closely linked to economic booms. Japan was the first territory in the region to experience a sharp decline in fertility to reach replacement level, following a short-lived baby boom after World

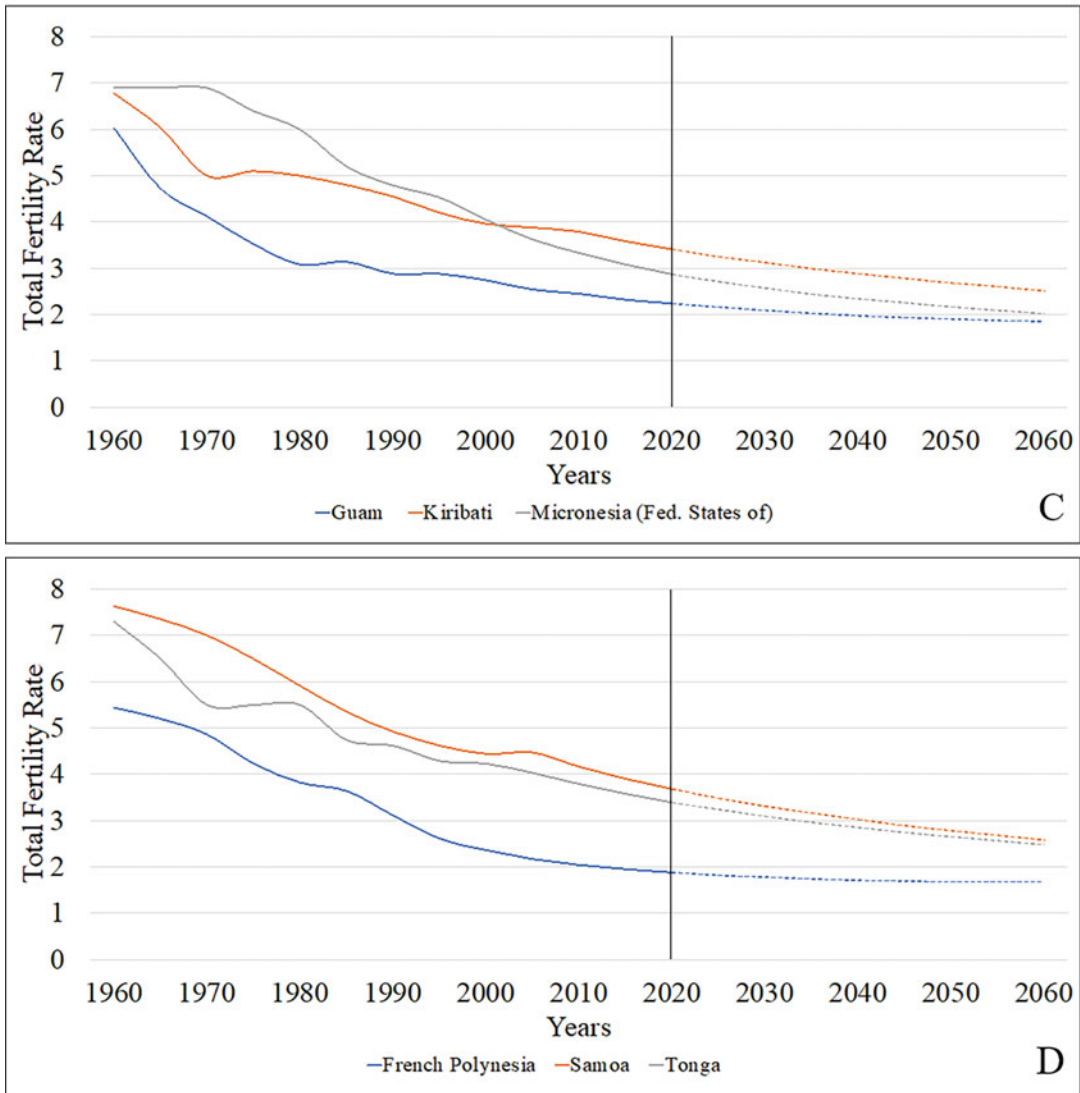


Fig. 13.1 (continued)

II. With continued United States (U.S.) influence in the decades after the war, Japanese population policy was significantly affected by Western population experts (Oakley, 1978). Japanese population experts after the war sought to reverse the pronatalist position of the previous administration and in 1948 a Eugenic Protection Law was passed which essentially opened a legal avenue for induced abortions if pregnancy posed a threat to a woman’s economic or physical well-being (Inoue, 2001; Oakley, 1978). At the time, this was the most liberal abortion law in the world

(Oakley, 1978). Low levels of public access to contraception meant abortion was practiced as an easy solution to an unwanted pregnancy – more than one million abortions were reported annually from 1953 and 1961, compared to an average of 1.7 million births per year (Ermisch & Ogawa, 1994). During this time, mortality also sharply decreased from 17.6 per thousand in 1946 to 7.8 per thousand in 1955, partially due to the widespread vaccination program delivered by the occupying forces after the war (Oakley, 1978). Coverage of birth control also received significant

attention in newspapers and women's magazines, hence public awareness of contraception grew (Inoue, 2001; Oakley, 1978). In 1949, the Cabinet's Population Problems Research Council's report urged contraceptive services to be made available alongside related educational activities (Oakley, 1978). In 1952, the Guidelines to Promote Birth Control by the Ministry of Health were enacted, followed by a strengthening of health facilities and birth control was officially funded. Rapid declines in fertility continued and TFR reached replacement level by 1957, stabilizing for the next two decades. Contraception became widely practiced – according to the Mainichi Shinbun Survey, 33.6% of married women under 50 reported using contraception in 1955, which increased to 60.5% in 1975 (Inoue, 2001). Fertility declines were initially driven by lower marital fertility, but in the 1970s and 1980s postponement of marriage played a greater role in drops of the TFR (Ermisch & Ogawa, 1994). From the 1960s to the 1990s Japan witnessed unprecedented and rapid economic development, and rates of educational attainment sharply increased. Concurrent to this, job opportunities for women also increased, which likely contributed to postponement of marriage and further declines in fertility rates (Ermisch & Ogawa, 1994). In light of labor shortages in the 1980s and later, concerns about continued low fertility rates and population aging, Japanese population policy began in the 1990s to become concerned with increasing the fertility rate. In 1994, the first 'Angel Plan' was introduced, mostly focused on child care and support for mothers, highlighting the switch to "family-friendly" policies, which are discussed in more detail later in the chapter (see also Chap. 17: *Family Policies: How do they Differ around the World?* of this *Handbook* [Wesolowski & Billingsley, this volume]).

In Taiwan, strong state initiatives in the second half of the twentieth century were designed to reduce fertility, with the underlying rationale of boosting economic development. During the 1950s, however, the influence of Western population experts was met with rather more resistance than in Japan. When intellectuals and foreign observers in Taiwan noted the need for

family planning policy, it was at first met with serious opposition, because Sun Yat Sen's teachings had emphasized the importance of population growth in order to keep pace with the West (Liu, 2001). Nonetheless, in 1954 the Planned Parenthood Foundation was established as a non-governmental organization in Taiwan, and the government introduced the first family planning program in the 1960s. This emphasized contraception and was funded by external agencies, mostly USAID as well as the Population Council and the University of Michigan (Liu, 2001). The first five-year Family Health Plan was developed by the Department of Health in 1964, and The Maternal and Child Health Association was established to deliver contraception and education (Lee & Lin, 2016). The goal was to insert 600,000 IUDs, equivalent to 45% of married women under the age of 39 (Liu, 2001). Oral contraceptives were introduced into the program in 1967, followed by condoms in 1970 (Lee & Lin, 2016). In 1969, government guidelines for population policy were developed, and to ensure their success, family planning offices were set up at all levels of the government. Advocacy and education programs communicated information about family-planning, with health workers employed in all districts. At this time, it was routine to see door-to-door visits where workers distributed contraceptive information and services (Lee & Lin, 2016). These strong and comprehensive state measures were later supported by financial tools to disincentivize larger families; in the 1970s, government employees with more than three children were targeted with cuts in benefits (Liu, 2001). Measures were extended in the early 1980s; only families with up to two children would be granted tax deductions and be eligible to receive financial allowances for birth and education tuition. Another area of population policy aimed to improve population 'quality' through health, education, and eugenics. Induced abortion became increasingly popular, and in 1985, 24% of married women had reported receiving an abortion, even though it was made legal only in the same year. In fact, family-planning and contraception had become so mainstream that

the WorldWatch Institute ranked Taiwan first for contraceptive acceptance in 1987 (Lee & Lin, 2016). Despite the success widely attributed to the policies in reducing fertility rates, they were in fact already declining sharply prior to the introduction of the birth control policies in the 1960s (Davis, 1967). TFRs began to drop in the 1950s after the short-lived baby boom, and reached replacement level by the early 1980s. Therefore, the birth control programs may simply have been substituting publicly funded birth control services for those which may otherwise have been sought out privately by individuals wishing to manage their family size (Davis, 1967).

South Korean fertility rates followed a similar trajectory to Taiwan. Family Planning Policy in South Korea received strong state support in the 1960s with the main objective of aiding economic development (Kwon, 2001). In the wake of World War II and the Korean War, South Korea witnessed mass waves of immigration which included repatriated citizens from Japan and China, and refugees from the North. Together with a baby boom after the war, the population grew rapidly from 16 million at the end of World War II to almost 25 million in 1960 (Kwon, 2003). In light of this rapid population growth, a population program was developed from 1962 to 1966, and institutional provision was made from 1967 to 1971 for contraceptive programs, including significant provision for voluntary sterilization (Kwon, 2001; Lee & Choi, 2015). The following decade saw a diversification of population control policies, with the introduction of financial incentives for one- or two-child families such as free school fees, family allowances, and access to public housing (Bae, 2020). Free healthcare was also offered if parents agreed to be sterilized after birth. Fertility rates rapidly decreased in the 1960s and 1970s, accompanied by economic development and mass rural-to-urban migration (Kwon, 2003). Population control policies in South Korea in this period were marked by strong leadership support and consensus. While these undoubtedly coincided with the changing preferences for smaller families, they were in parts coercive and undeniably insensitive

to reproductive rights (Bae, 2020). At the time, the population program was largely hailed as successful and responsible for the fertility declines. In a 1966 report by the Population Council, John Ross writes: “*Taiwan’s program is not yet two years old, and already it has inserted one IUD (intra-uterine device) for every 12 women in the childbearing years, or about one for every 4–6 target women (those who are not pregnant, lactating, already sterile, already using contraceptives effectively, or desirous of more children).* [South] Korea has done almost as well, and until recently had performed substantial numbers of vasectomies. In both countries, the monthly rate of [IUD] insertions has reached approximately five per 1000 women in the childbearing ages, a remarkably high figure” (Ross, 1966: 1).

However, it has also been argued that the population policies in South Korea may have had little effect on fertility decline – they emphasized motherhood and child health rather than choice, and promoted contraception and sterilization rather than abortion, which was widely desired and practiced illegally (Davis, 1967). During the 1980s, there was a sharp rise in male sex ratios at birth from 105.3 males per 100 females in 1980 to 115.5 in 1994, which was driven by the availability of sex-selective abortion (Kwon, 2003). In light of continued low fertility rates and concerns about sex ratios at birth, South Korea’s population management policy switched from control to “quality improvement” in 1996 with the prevention of induced abortion and improvement of family health and wellbeing (Bae, 2020).

In mainland China, population policies in the first two decades after the establishment of the People’s Republic of China in 1949 were rather inconsistent and accompanied political fluctuations. People were considered the most valuable resources by Mao (Mao, 1961), and this view dominated China’s thinking on population issues until 1953 (Aird, 1982). At that time, China followed the orthodox socialist ideology, which had a pronatalist tendency. Although without any direct population policies, this tendency was clear in China’s social and economic

policies, which provided birth subsidies to working parents and free medical services for expecting mothers and infants. In addition, sterilization and induced abortion were severely restricted by the government (Peng, 1991). The idea of birth control first entered the Chinese government's policy agenda during the "First Five-Year Plan" period (1953–1957). The first population census (conducted in 1953) revealed rapid population growth in China and raised concerns over the earlier pro-natal policies. In the following years, a series of measures were introduced to promote birth control, including relaxing access to contraception, revision of regulations on abortion, and an extensive campaign to provide basic information on birth control (Chang et al., 2005).

However, Mao's views on population shifted entirely during the period of the "Great Leap Forward" (1958–1961) and correspondingly population policy shifted as well. Although it was not officially abandoned, practical birth control work ceased to function and support for birth control was widely criticized. Nevertheless, because of the three-year "Great Famine" caused by the "Great Leap Forward" campaign, China had for the first time a negative population growth rate despite the stagnation in the distribution of birth control. As soon as the "Great Leap Forward" campaign ended in 1962, China experienced a sharp increase in fertility due to compensatory childbearing after the famine (Zhao & Reimondos, 2012). The society as well as the government then turned their attention to birth control again. In 1962, the Central Committee of the Communist Party (CCCP) and the State Council jointly issued a directive on promoting family planning (CCCP & The State Council of PRC, 1962). Later in 1964, the State Council set up a special agency, the "Committee of Family Planning" to take over birth control policy. Family planning programs however were again interrupted by a political campaign started in 1966—the "Cultural Revolution". The whole political system collapsed at the beginning of the "Cultural Revolution", and therefore, agencies working on family planning stopped functioning and their personnel were dismissed (Peng, 1991). The family planning work was not

resumed until 1970; thus we can see there was a spike at the middle of the 1960s on the TFR line (see Fig. 13.1).

Family planning finally entered a period of consistency and significant backing in the 1970s, as the political atmosphere became more stable. In 1971, family planning was again on the government's agenda. In comparison to previous campaigns, there were clearer goals for this one: promoting late marriage, longer birth intervals, and having fewer children. These goals were later summarized in the slogan that the Chinese are quite familiar with, "*Wan* (later), *Xi* (longer), *Shao* (fewer)", which was first introduced in 1973 in the "First National Family Planning Work Report Meeting". More specifically, "*Wan*" means the recommended marriage age was 27 for men and 25 for women in urban areas; 25 for men and 23 for women in rural areas. "*Xi*" requires a four-year interval for each birth. And "*Shao*" was the emphasis of the campaign, which considered having two children was the most ideal number. In the same year, the State Council set up a national leading group for family planning, and the campaign was rolled out nationwide by setting up local agencies with required supervision from key party members. Later in 1978, the State Council Family Planning Committee was reorganized to take charge of family planning work, including planning and supervision.

From the mid-1970s, the State Council Family Planning Staff office set annual targets for the natural population growth rate for each province. Each province allocated birth quotas accordingly to the lower administrative units and then to the lower ones until the community-level (Peng, 1991). In the 1970s, implementation of family planning emphasized voluntary cooperation from the family and focused on education and propaganda. However, because of political pressure (mainly because the success of family planning work determined program administrators' career advancement, also known as the political tournament for promotion), local cadres often adopted some coercive measures in order to meet the numeric targets (Peng, 1991). The "*Wan*, *Xi*, *Shao*" campaign marked the most significant

fertility decline in China. The TFR decreased from 4.85 in 1970 to 2.52 in 1980 (see Fig. 13.1). However, as the “baby boom” generation who were born in the 1950s and 1960s were now reaching the age of marriage and childbearing, concerns emerged within the government that the current regulations (of having no more than two children for each family) might not be able to control population growth as planned, and should be changed accordingly. Another critical motivation to further tighten the restriction on child numbers had to do with economic considerations, as having too large a population was considered as an obstacle towards modernization, which was the major developmental direction of China at that time (Greenhalgh & Winckler, 2005). The National Family Planning Office directors’ meeting in 1979 marked a critical transition of China’s family planning campaigns. In that meeting, the government decided that the family planning campaign should undertake coercive measures including economic and political incentives/sanctions rather than merely mass propaganda and public education (Chang et al., 2005). Starting that year, local governments gradually issued interim provisions on family planning to regulate non-complying individuals with economic, political, and even legal measures. In September 1980, the CCCP published an open letter to members of the Party and Communist Youth League to clarify the national instruction, which was for each couple to have only one child. At the beginning, the social resistance to the One-Child policy was strong, particularly in rural areas. Later on, in 1982, the government changed the rules slightly, allowing rural couples who have ‘real difficulties’ to have a second child under permission from local authorities (CCCP & The State Council of PRC, 1982), where the “real difficulties” in general refer to the fact that the first child is a girl, as strong son-preference is particularly relevant to agricultural production. This policy is considered as one of the major reasons for China’s severely distorted sex ratio at birth (Goodkind, 2011). In 1984, eligible rural two-children couples accounted for less than 5% of the eligible one-child couples, therefore there were emerging discussions about expanding the proportion of two-children eligible couples to

10%. After that, provinces gradually revised the relevant regulations to allow couples in which both parents are single children to have two children (CCCP, 1997).

Nonetheless, the government was determined to enforce family planning and the whole country was mobilized. Beside propaganda measures, political leaders at all levels were also urged to take charge of family issues. In September 1982, at the 12th National Congress of the Communist Party, the One-Child policy was decided on as a fundamental national policy and was written into the Constitution in December. In 1991, the CCP and the State Council issued a Central Document (No. 9, “Decision on Strengthening Family Planning Work and Strictly Controlling Population Growth”), in which family planning work became not only as important as economic development issues, but also was given high political importance for local cadres (Wang, 2012). Since then, there has been no major change in population policy for China during the first decade of the twenty-first century. The TFR in China fell to replacement level in 1990 and has continued to decline further.

In Hong Kong, which remained under British colonial rule until 1997, population size grew significantly over the second half of the twentieth century despite declines in the fertility rate, due to high rates of immigration, mostly from mainland China. During the Chinese Civil War, it was estimated that around 1.28 million immigrants arrived from China (Wong, 2007) and shortly after the conclusion of the war, the colonial government introduced an Immigration Control Bill to regularize migration flows from the mainland (Ku, 2004). Nonetheless, mass migration flows occurred in 1949–1952, 1958–1962, 1967–1973, and 1979–1980 driven by political events across the border, including the “Great Leap Forward” and the Cultural Revolution (Ku, 2004). Although Hong Kong’s colonial government did not put an emphasis on population policy, the activities of the Family Planning Association of Hong Kong, set up as a non-governmental organization in the 1950s, were crucial to the spread of contraception in the 1960s and 1970s (Chan, 1976). Their activities

included disbursing informational and promotional material, providing education as well as supplying contraceptives, primarily condoms (Chan, 1976). The TFR quickly declined to reach replacement rate by 1979 (Atoh et al., 2004). Similar to all post-industrialized states, Hong Kong's fertility transition was marked by an increased average age at childbearing, increased age at first birth, and shorter time span of childbearing, i.e., aging and compression of childbearing (Basten, 2015). In a bid to curb illegal immigration, the Chinese and British governments introduced a 'one-way permit quota system' in 1983 to permit migration from China to Hong Kong for family reunion (Wong, 2007) and the overall population continued to grow from 5.18 million in 1981 to 6.27 million in 2001 (Basten, 2015).

Mongolia is the only territory in East Asia that continues to have an above replacement-level TFR. Pronatalist policies in the second half of the twentieth century in Mongolia included benefits such as cash allowances for children and marriages and a legal code to protect working mothers. However, there were also several negative and coercive policies. For example, there was a tax for unmarried adults or families without children, while contraception and abortion were severely restricted (Byambaa, 2018). Prompted by high infant and maternal mortality rates, these policies were loosened in the late 1970s and 1980s; contraception became more widely available and abortion laws were slowly loosened. During the transition from socialist to market economy in 1990, these restrictions were loosened even further and fertility declined to its lowest level in 2005.

Finally, knowledge about fertility and population in the Democratic People's Republic of Korea (DPRK) is extremely limited, but demographic estimates using available data sources have been surprisingly consistent (Spoorenberg, 2014). Data suggests that fertility declined rapidly during the period from the late 1990s to early 2000s, which coincided with famines and much political turbulence. Fertility rates are now estimated to be at around replacement level (Spoorenberg, 2014).

## **Effectiveness of East Asia's Population Control Policies and the Switch to Pronatalism**

China's population policies in the twentieth century have attracted the most global attention of all for their broad scope, extremely high levels of coerciveness, and strict enforcement. While the One-Child policy and its antecedents were certainly unprecedented in their scope and scale of reach, it would be a mistake to forget the coercive nature of population policies which existed elsewhere in East Asia during the twentieth century. Sterilization was widely practiced as the main form of population control in South Korea in the 1970s, while Taiwanese population policies included incentivized contraception, abortion, and sterilization, which were undoubtedly coercive at times. Furthermore, the extent to which the most coercive policies had a direct impact on population change is contested. In China, data suggests that the reduction in fertility which had begun before the One-Child policy was implemented would have continued and that fertility rates may not have been significantly higher without the policy (Gietel-Basten et al., 2019). In addition, the swiftness of the reduction in fertility rates in South Korea and Taiwan suggests that social conditions for the transition were already in place, and that population policies may have had a smaller impact than is widely assumed (Davis, 1967). For example, public housing take-up in South Korea has always been low because most Koreans aspire to buy private property, and the tax benefits for having two or less children were not hugely significant (Kwon, 2001). The rapid adoption of contraceptives and use of abortion and sterilization were to a large degree affected by economic conditions, whereby parents faced growing expectations for costly investments in their children's education. Finally, after the decline in fertility to replacement or below-replacement levels, towards the end of the past century most territories switched from coercive and restrictive anti-natalist policies to pronatalist or "family-friendly" policies intended to promote childbearing, which are discussed in more detail

in the section “[Recent population policies and the legacy of foregoing policies](#)”.

## Oceania

Population policies in Australia and New Zealand in the twentieth century were marked by two experiences: the prolonged and intense baby boom after World War II and high rates of immigration. During this time period, and with the absence of explicit population policies (Jones, 1997), net migration played a more important role in the population growth of both states. Prior to World War II, Australia and New Zealand utilized immigration for nation-building, wherein cultural homogeneity of the population was the main focus; this immigration strategy was marked by various restrictions based on the migrants’ country of origin (Akbari & MacDonald, 2014). These policies highlighted the deliberate preference for certain countries such as the United Kingdom and Ireland and the conscientious regulation of entry from Asian territories (Bedford et al., 2000).

New Zealand’s baby boom after World War II was one of the most accelerated of post-industrialized states in the world, but fertility started dropping rapidly in the 1960s, reaching replacement level in the late 1970s. Nonetheless, fertility rates then levelled off and have since remained higher than in many other post-industrialized states. There is a significant diversity of fertility rates among New Zealand’s diverse population, with higher rates among indigenous ethnic minority groups such as Pasifika and Maori (Urale et al., 2019). Overall, however, there has been a shift to later childbearing in New Zealand (Callister & Didham, 2007).

In Australia, a more wide-ranging set of family policies were put into place, which changed based on the political administration of the time. The first “family-friendly” policies introduced in the 1950s included generous tax deductions for children, a child-endowment payment, and allowances for certain child expenses. These policies were introduced by the Liberal-Country coalition of the Menzies government, and were

intended to promote equity for families. Although these could be viewed as somewhat holistic policies, it could be argued that Australia’s ‘negative’ policies (and policy gaps) in this time period were in fact pronatalist and at times coercive; they failed to tackle issues such as unequal pay and child care, and included restrictions on access to contraceptives, birth control clinics, and illegal abortion (Hugo, 2000). Nonetheless, during the 1960s and 1970s the TFR declined to reach replacement rate in 1976. In the 1970s and 1980s, a number of these ‘negative’ policies were reversed and the TFR declined further but levelled off, staying within a range of between 1.8 and 2 for the next two decades (Hugo, 2000). Child allowances were abolished in 1976 by Conservative parties and replaced with a universal cash payment for each child born, alongside the provision of the first child care subsidies and paid maternity leave for public sector jobs. In order to support mothers returning to the workforce, the policy focus in the 1980s was on child care; a means-tested financial subsidy was introduced and later expanded to include middle income families and support for private child care centers in 1990 (McDonald, 2015). One key focus of the policy was financial support for families with children which morphed as policy administrations changed; the means-tested Parenting Allowance was introduced in 1995, replaced by the Family Tax Benefit in 1999 and then subsumed by the Child Care Benefit. McDonald and Kippen argue that policy in Australia in the 1990s was, however, relatively unfriendly to work-family combinations, with rising child care costs and declining job security (McDonald & Kippen, 1999). The TFR continued to fall slowly, reaching 1.74 in 1998.

In addition, immigration policy changed significantly over this period. In 1966, Australia took the first step in abolishing the “White Australia” policy, and in 1973 the Whitlam Labour government made additional strides to remove race as a factor in its immigration policies (Australian Government, 2009). It took New Zealand two more decades to officially end the traditional source country preference system which had been part of its immigration policy since the



1840s (Bedford et al., 2000). The end of these restrictive policies resulted in a more diverse immigrant pool mostly coming from Asia, specifically China and India.

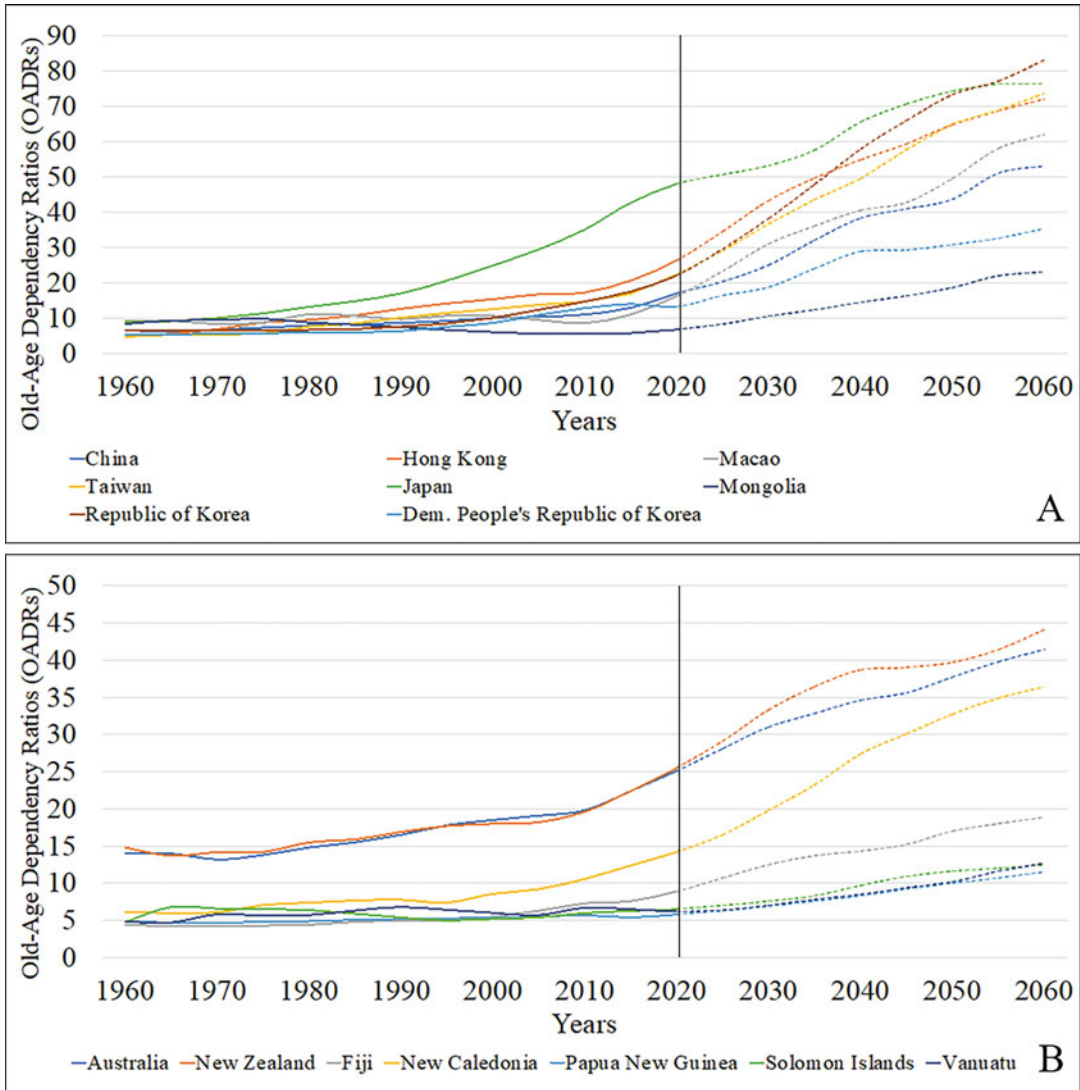
In the Pacific Islands, family planning programs were implemented in the 1960s and 1970s in most island territories (Lucas & Ware, 1981). In Tonga, the Family Planning Programme was supported by the King, and became institutionalized in 1969 with the formation of the Tonga Family Planning Association (Lucas & Ware, 1981). A family planning program was initiated in 1968 in Kiribati and fertility began to decline. However, traditional leaders and the Catholic Church opposed the program, and successes in distributing contraceptives stalled; by 1990 the rate of contraceptive prevalence was 27% (Hayes & Robertson, 2011). Family Planning programs were also initiated in Federated States of Micronesia (FSM), Papua New Guinea (PNG), Solomon Islands, and Vanuatu and fertility declined modestly, however the success of the programs is hard to define given poor data on contraceptive uptake (Hayes & Robertson, 2011). After the International Conference on Population and Development (ICPD) in 1994, efforts moved from family planning and maternal and child health initiatives, to more comprehensive reproductive health programming. However, these policy changes in the Pacific islands may have wasted resources and weakened prior family planning efforts (Hayes & Robertson, 2011). Religious or political conservatism also set back family planning efforts, and despite the prevalence of low-cost contraception through family planning centers, utilization remained lower than its potential (Hayes & Robertson, 2011). In Fiji, the first family planning program was initiated in the 1960s, however, fertility rates have declined slowly and remain above replacement level (UNFPA, 2014). Fiji's socioeconomic development has contributed to this decline, but more rapid fertility decline can also be attributed to the high uptake of contraception and lower fertility rates amongst the ethnic Indian population who followed a strategy of smaller family sizes, investing in children's education and seeking overseas work opportunities

(Hayes & Robertson, 2011). In Papua New Guinea, a National Population Policy was implemented in 1991, with the target to reduce the TFR from more than five children per woman to 3.5 by 2000 (Mcmurray, 1992). The policy was supported by the World Bank, the Australian Development Bank, the Australian International Development Assistance Bureau (AIDAB), the U.S. Agency for International Development (USAID), UN Population Fund (UNFPA), and the World Health Organization (WHO) (Mcmurray, 1992). Despite the wider availability of contraceptive methods and improved family planning programs, the policy failed to reach its target. Severe gender inequality remains problematic for the success of family planning programs; men often perceive family planning to be 'women's business' and lack of uptake of contraceptives has been influenced by gendered social perceptions (Gupta et al., 2020).

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### Recent Population Policies and the Legacy of Foregoing Policies

In most of East Asia as well as Australia and New Zealand, the demographic transition has been followed by further decline and sustained sub-replacement fertility rates. Concerns about ultra-low fertility rates have been particularly pronounced in East Asia, where fertility rates are among the lowest in the world. As a result, population aging has become the central focus in all of these territories. The pace of aging in these developed territories is varied and this is reflected in their differing old age dependency ratios (OADRs) or the number of people at least 65 years old for every 100 people in the working age group, 15–64. The OADRs among East Asian territories started in the 1960s at below 10 seniors 65 and older for every 100 people in the working age group, 15–64 (see Fig. 13.2). Until 2020, Japan had the highest OADR at 48 and trailing far behind are Hong Kong and Taiwan with OADRs of 26 and 22, respectively. All of these East Asian territories are projected to have a rapid increase in OADRs until 2060, with South Korea predicted to have the highest ratio in the region;



**Fig. 13.2** Old-age dependency ratios (OADRs) across East Asia and Oceania, 1960–2060 (a) Major territories in East Asia, (b) Australia, New Zealand, and Major territories in Melanesia, (c) Major territories in Micronesia, and (d) Major territories in Polynesia. (Notes: (1) the OADRs are calculated based on the ratio

of population aged 65+ per 100 population aged 15–64, (2) the projection of the OADRs is the UN Medium variant projection, (3) the dashed lines are the projection figures, and (4) the territory selection is based on the territories detailed in the UN World Population Prospects 2019. Source: United Nations, 2019)

South Korea and Japan will then have an OADR of over 75. China and its special administrative regions (Hong Kong and Macao) as well as Taiwan are also projected to experience a rapid increase in their OADRs, to reach over 50 by 2060. For these reasons, East Asia is considered to be a global epicenter for rapid population aging

(Scherbov et al., 2016). However, as we will explore in the final section of this chapter on “Population policies in East Asia and Oceania”, new measures of population aging like the Prospective Old Age Dependency Ratios (POADRs) suggest that the situation in East Asia is not as severe as it might at first appear.

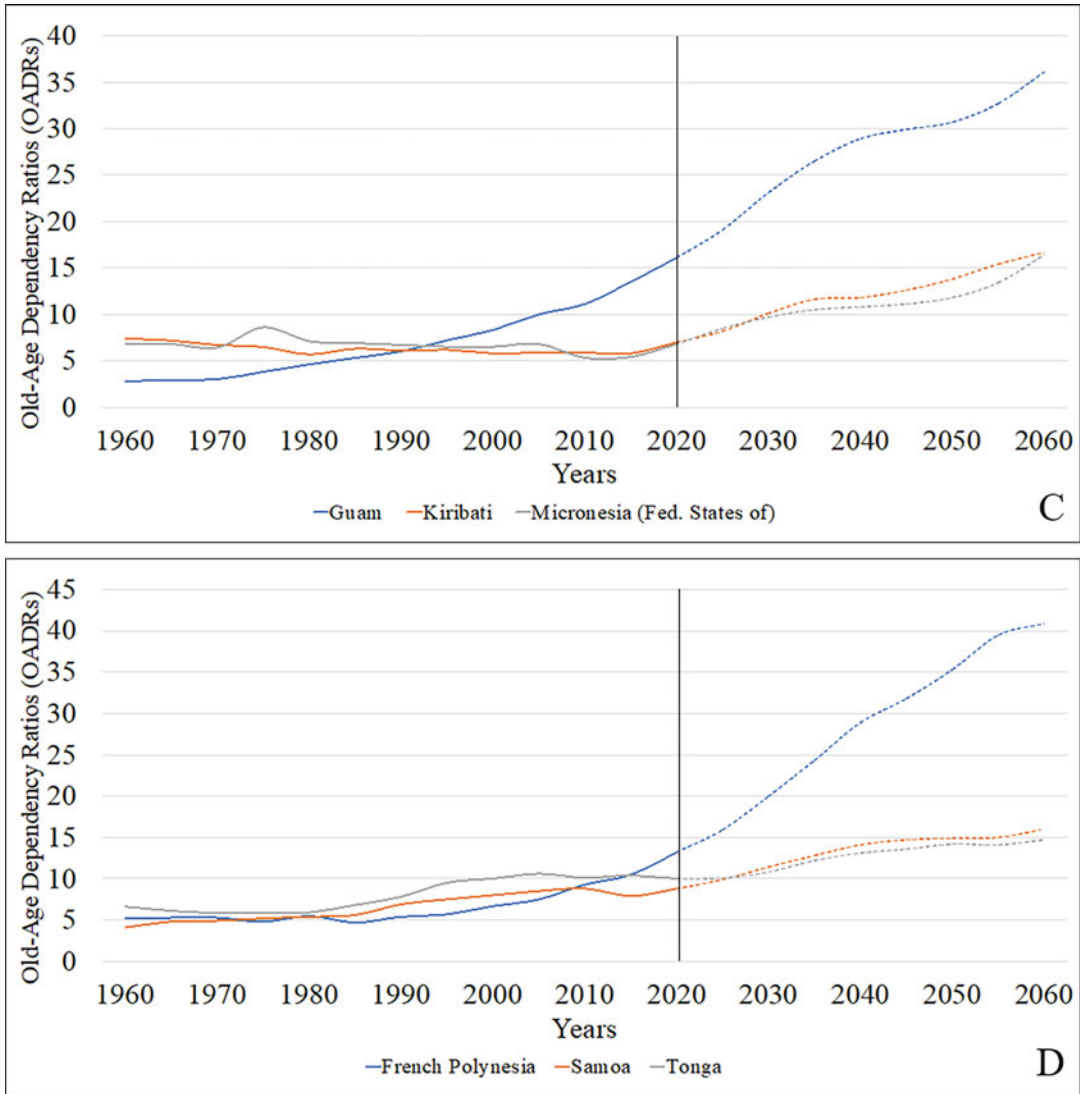


Fig. 13.2 (continued)

An aging population continues to be seen and described as a problem; it results in a declining working-age population which is bad for the economy, and incurs a large financial burden for health and pensions systems. In response to concerns about aging, governments often focus on policies which try to solve the low fertility “problem” (Gietel-Basten, 2019). In East Asia, distinguishing between macro-level population policy, which attempts to address population size and composition, and family policy, which tackles micro-level issues such as helping

families to balance work and family, is particularly challenging because it is the latter type of policies that have often been implemented in recent decades, with the purpose of raising the fertility rate in a bid to solve the problem of aging (Basten, 2015).

**East Asia**

Territories in East Asia were generally slow to switch to pronatalist or “family-friendly”

programming, even after a sustained period of low fertility rates. The slow uptake of these policies may be somewhat tied to collectivist culture and the belief that responsibility for child-bearing should remain within the private sphere of the home, rather than being legislated by the government (Cheng, 2020). In the past 20 years, East Asian territories also saw the implementation of other family friendly policies to improve the conditions of women, support families, and ensure work-life balance. These policies include paid maternity and paternity leaves, child care facilities, tax exemptions and subsidies for families with children, provision of health and medical services, and expansion of day care centers, among others (Basten, 2015; Lee & Choi, 2015; Matsuda, 2020).

The slow switch to pronatalism is highlighted by the provision of paid parental leave, which only appeared around two to four decades after TFRs reached replacement level in Japan, South Korea, Hong Kong, and Taiwan (Cheng, 2020). In Japan, population policy remained relatively “hands off”; the TFR dropped further driven by a slowdown of GDP growth in the 1980s and rapidly rising increases in women’s tertiary educational enrolment (Inoue, 2001). In 1992, unpaid maternity leave provision was introduced via the *Ikuji Kyugyo Ho* (Maternity and Child Care Leave Law) and then updated to include paid provision in 1995, and extended again in 2005, 2007, and 2009. This policy provides twelve months leave, applicable to working parents who work more than 20 hours per week, with financial compensation gradually increasing from 25% in 1995 to 50% in 2007 (Tsuya, 2015).

In South Korea, Taiwan, and Hong Kong, parental leave provision was offered later but, similar to Japan, has slowly become more generous over time (Cheng, 2020). Paid maternity leave provision in South Korea was first offered in 2001; 90 days leave is offered at 100% salary, plus an optional one year further maternity leave at 40% salary, although this amount was capped at a maximum of KRW one million per month in 2015 (Lee & Choi, 2015). Three days paid paternity leave was offered in 2007 and updated to ten days in 2019. In addition, both South Korea and

Japan now provide provision for gender-neutral parental leave which is offered for up to twelve months—some of the longest periods of parental leave in the OECD (*OECD Family Policy Database*, n.d.). In Japan, both parents may take leave at the same time with the first 180 days paid at 67% of earnings and the remainder at 50%. In South Korea, the first parent’s 80% of earnings are covered for the first three months and 40% thereafter up to a maximum of one million Won per month. For the second parent to take leave, the first three months are paid at 100% of earnings up to a maximum of KRW 1,500,000 per month, rising to KRW 2,000,000 for the second and future children (*OECD Family Policy Database*, n.d.).

In Taiwan, most female employees could claim eight weeks maternity leave based on the Labor Standards Law of 1984, however provision was not paid (Feng & Han, 2010). Under the 2002 Gender Equality Employment Act, this was updated to offer two years unpaid parental leave to be taken by either men or women, and further backed up in 2008 by an amendment to the Employment Insurance Act to offer a subsidy during the first six months of parental leave (Tsai, 2012). Driven by ever-increasing concerns about ultra-low fertility rates, this subsidy somewhat transferred the financial burden of leave to employers and the state, with funding coming from employer social insurance schemes but roughly equivalent to 60% of pay for six months leave (Tsai, 2012). In Hong Kong, statutory maternity leave of ten weeks was implemented in 1981 under the Employment Ordinance, and was updated to fourteen weeks leave only in 2020 (Labour Department, 2020). Hong Kong introduced three days paternity leave in 2015, updated to five days in 2019 (Labour Department, 2020). However, uptake of paternity leave has been low in all territories; for example, in 2017, uptake of paid parental leave by fathers was 3% in Japan, 5% in South Korea, and 8% in Taiwan in 2017 compared to 83%, 76%, and 22% respectively for mothers (Cheng, 2020). A prevailing “hard work” culture and rigid labor market institutions may deter parents from taking leave (Brinton & Oh, 2019; Cheng, 2020).

Child care provision and financial incentives for childbearing have been the central focus of pronatalist or “family friendly” policies in all four states. In Japan, the first five year “Angel” plan of 1994 focused mostly on child care responses, with the 1999 New Angel Plan also adding employment and maternal health (Boling, 2000). These were followed by the Plus-One Plan of 2002, the *Shoshika Shakai Kihon Hou* (Basic Act for Measures to Cope with Society with a Declining Birth Rate) in 2003, *Kodomo to Kazoku wo Ouensuru Nihon Juten Senryaku* (Strategy to Assist Children and Families) in 2007, *Kodomo Kosodate Bijyon* (Vision for Children and Child Care) in 2008, and *Taiki Jido Kaisho Kasokura Puran* (Plan to Accelerate the Reduction of Preschool Children on Waiting Lists) of 2013 (Matsuda, 2020; Tsuya, 2015). All these policies focused on various low fertility counter-measures which were based on the two pillars of child care facilities and work-life balance (Matsuda, 2020; Tsuya, 2015). Specific child care outputs included subsidies, efforts to improve child care standards, expansion of access in rural areas, and supporting women’s employment by encouraging child care leave. Rates for child care and facility use indeed increased from 27% in 2003 to 42% in 2017 (Bae, 2020; Matsuda, 2020). However, the number of children on waiting lists also increased and there has been an acute shortage of places in urban centers while most rural areas have an excess supply of places (Tsuya, 2015). Plans for work-life balance also included encouragement for shorter work days through tax incentives (Matsuda, 2020). In addition, the child allowance scheme, which was initially introduced in 1972, has gradually been expanded to include income-testing and the allowance has gradually increased, especially since 2000 (Tsuya, 2015).

In South Korea, policies were implemented in the mid-1990s for the improvement of family health and well-being, response to reproductive health problems, efforts to increase female employment and labor efficiency, and intervention to modify existing family planning programs and policies supporting anti-natalism (Bae, 2020). Another shift in policy priorities was instituted in

2004 with the “Framework Act on Healthy Families” and the expansion of the Ministry of Gender Equality to the Ministry of Gender Equality and Family in 2005, the first to deal exclusively with family policy (Chin et al., 2012). In 2005, the first Basic Law on Low Fertility and Ageing Society was drawn up, with a five-year Basic Plan formulated in the following year and covering 15 government departments (Bae, 2020). These were followed up by the Second Basic Plan in 2010 and the Third Basic Plan in 2015. All plans have included three key areas of focus: “improving support for childbirth and child rearing, fostering a family-friendly and gender equal culture and society, and raising a healthy future generation” (Lee & Choi, 2015: 120). Specific policy outputs have included provision of fees and/or allowances for day-care and kindergarten, tax exemptions for families with children, provision of health and medical services, and funding for *in vitro* fertilization (IVF).<sup>2</sup> Under the second pillar, the government has also attempted to facilitate child rearing by making workplaces more “parent-friendly”, via efforts to expand in-work day-care centers, reduce working hours with statutory mandatory work leave, and support publicity and education campaigns that promote gender equality in the workplace and the home (Lee & Choi, 2015).

In Taiwan, New Guidelines for Population Policy were introduced in 1992 which amended population policy objectives to focus on maintaining a reasonable growth rate, yet no concrete outputs were formulated (Lee & Lin, 2016). Labor shortages in Taiwan during this decade were increasingly met by importing foreign workers, with flows of low-wage workers increasing rapidly, coming mostly from Southeast Asia. A rapid drop in the TFR after 1997 spurred further public discussions about population, but the first Population White Paper was not formally launched until 2008 (Lee & Lin, 2016). The first part of the policy, child policy, focused on measures to increase Taiwan’s extremely low fertility rates (Lee et al., 2007; Lee & Lin, 2016).

<sup>2</sup> See Chap. 33: *Bioethics, Sex Selection, and Gender Equity* of this *Handbook* (Rahm, [this volume](#)).

The reformulation in 2013 expressed quantitative targets for 180,000 births per annum over the following decade, with the policy's outputs representing the slogan "happy to marry, willing to have children, and able to raise them" (Lee & Lin 2016: 273). In 2010, the government introduced the Early Childhood Education and Care Act and, in 2011, the Protection of Children and Youth Welfare and Rights Act was amended (Lee & Lin, 2016). These policies offered free preschool tuition for five-year-olds, and provided benefits to unemployed parents with children under two years old. In 2013, this was extended to include child care subsidies for working mothers, and in 2014 a registration system was developed for home-based child care (Lee & Lin, 2016). Formal child care provision remains scattered in Taiwan; Cortés and Pan found that in 2000, less than 0.5% of Taiwanese children aged 0–3 years attended and most children were cared for by family members (93%) or by nannies (7%) (Cortés & Pan, 2013). These nannies are primarily live-in foreign domestic workers from Southeast Asia who migrate through Taiwan's guest worker program; the numbers of domestic workers have been increasing steadily reaching 259,144 in 2019 (Everington, 2019). The policies have also included financial incentives for child-bearing; the Income Tax Act of 2012 provided tax deductions for families with young children; those with children under five receive a TWD 25,000 deduction (USD 810 as of June 10, 2015), about 10% of the annual minimum wage, with a means test (Lee & Lin, 2016).

In Hong Kong, "family-friendly" policies have remained piecemeal in the past two decades (Basten, 2015). For example, child allowance tax deductions were established targeting the poorest families, and direct school-fee subsidies were offered from 2007 (Basten, 2015). Kindergarten places are provided, with an almost universal uptake for children aged three to six in Hong Kong (University of Hong Kong, 2016). However, child care provision for children under the age of three remains slim; in 2016, only 2.5% of children under the age of two used child care services and 55% of those aged two to three (University of Hong Kong, 2016). Much like in

Taiwan, a significant proportion of higher and middle-income families in Hong Kong rely on foreign domestic workers; in 2000, one in three households with young children hired a foreign domestic helper (Cortés & Pan, 2013). In a *South China Morning Post* news article by (Siu, 2017: 1), Hong Kong Secretary for Labour and Welfare Dr. Law Chi-kwong was quoted saying: "Today we have 360,000 foreign domestic helpers. Because of an ageing population, 30 years down the road, that demand will grow to 600,000. That means an additional 240,000 foreign domestic helpers [are needed], just for looking after the elderly".

From 1950 to 2020, the TFR in China dropped from 6.11 to 1.69 (see Fig. 13.1). China became an aging society as early as in 2000, when the total number of elderly people aged 65 and above reached 88.21 million, accounting for 7% of China's total population (Lu & Liu, 2019). By the turn of the twenty-first century, China started to relax the One-Child policy, from 2001 allowing couples who are both the only child to have two children, and then from 2013 allowing couples in which at least one of the parents is an only child to have two children (CCCP & The State Council of PRC, 2013). In December, the CCCP and the State Council jointly issued a Central Document (No. 12, Opinions on Adjusting and Improving the Population Policy) to require provincial governments to implement the new policy based on local social and economic conditions. Only two years later, in the 15th Plenary Session of the 18th Central Committee of the Communist Party in 2015, the One-Child policy was officially abolished, and the CCCP decided to implement the Universal Two-Child Policy, allowing *all* couples to have two children, which became formally effective on January 1, 2016. However, the policy's effect was much smaller than the government expected, and the TFR in China only experienced a minimal increase from 1.64 in 2010 to 1.69 in 2020, remaining far lower than the replacement level. More recent efforts from the government focused on the child care issue. In May 2019, the State Council released its first guidelines on increasing the provision of child care to provide a more

supportive environment for Chinese families (The State Council, 2019).

Contrary to other East Asian territories, fertility rates in Mongolia have in fact risen again, after they declined to replacement level in 2005, rising to 3.1 in 2014 (Byambaa, 2018). According to analysis by scholars, financial benefit schemes for childbearing may have been a key driver of rising fertility rates in the past 15 years (Spoorenberg & Byambaa, 2009). The Child Money Programme offered monthly cash allowances for families with three or more children, and from 2007, all children received a quarterly benefit of MNT 25,000. In 2012, children under the age of 18 began to receive MNT 20,000 (USD 14.7 at 2012 exchange rate) on a monthly basis (Byambaa, 2018).

What has been the impact of pronatalist and “family-friendly” policies in reversing the downward trend of fertility? Data indicates that on the surface, there has been no reversal in the declining TFR trend during the time these measures were implemented, instead the TFR either stagnated or continued its decline (see Fig. 13.1). To sustain higher fertility rates, Sobotka et al. (2019) posited that providing widely available, accessible and high-quality child care appears to be essential; however, the effects of most family-related policies are less clear. Recent studies of childbearing patterns and policy changes in East Asia have generally concluded that pronatalist policies consisting of financial and material incentives as well as assistance for parents to achieve work and family balance (like child care allowances and facilities, maternal and paternal leave) are not enough to reverse the fertility patterns to an upward trend, unless socioeconomic and cultural conditions are drastically altered and child- and “family-friendly” platforms are fostered (Cheng, 2020; Frejka et al., 2010; Raymo et al., 2015). Meanwhile, Dorling and Gietel-Basten (2017) argue that instead of viewing low fertility as a policy problem which requires fixing, policymakers and scholars should investigate the gap between ideal and actual fertility, in order to understand the factors affecting this gap. This would allow them to generate a better picture of why fertility is low and determine

appropriate policies which can help people meet their fertility aspirations.

## Oceania

In Australia, the OADR in the 1960s was above 10 older people per 100 people in the working age group (15–64) and rose to 25 in 2020. New Zealand is projected to overtake Australia in terms of OADR starting 2025, and the difference will be more distinct with the former having an OADR of 44 compared to the 41 of the latter by 2060. While there has been no overarching population policy with regard to fertility, “family-friendly” policies were in place as early as the 1950s and 1960s and continued into the twenty-first century: for example, universal cash payment for each child born, child care subsidies, paid maternity and paternity leaves, and flexible work hours (Callister & Didham, 2007; McDonald, 2015). In Australia, a universal payment known as the “Baby Bonus” of AUD 3000 was introduced in 2004, which is paid to families following the birth or adoption of a baby (the amount increased to AUD 5000 in 2008) (Gray et al., 2008). However, the Labour Government of 2010 changed this payment to a means-tested pay-out and the value has now been significantly reduced (McDonald, 2015). In Australia, the government introduced a subsidized parental leave scheme in 2012, granting 18 weeks benefit to be paid at minimum wage, with the option to also receive employer pay subject to paying tax on the benefit (McDonald, 2015). Compared to East Asia, work schedules are significantly more flexible in Australia; a common practice is for employees to work over-time to build credits to be taken as leave for occasions such as children’s school holidays (McDonald, 2015).

In New Zealand, population programming has been somewhat fragmented with regards to family support. In 2006, female prime minister Helen Clark introduced the “Choices for Living, Caring and Working”, a holistic plan which aimed to provide flexibility, employment, and support for parents and other carers, focusing on children’s education, out-of-school services, flexible work

schemes, and research (Callister & Didham, 2007). However, this program did not specifically tackle fertility supports or barriers (Callister & Didham, 2007). As of 2018, New Zealand offers statutory parental leave until a child is twelve months old, but does not offer statutory paid leave entitlement (*OECD Family Policy Database*, n.d.). Family allowance is offered via a means-tested tax credit to families with children, worth NZD 4822 in 2018 (*OECD Family Policy Database*, n.d.).

In the Pacific islands, by contrast, the fertility transition is incomplete. Melanesia, made up of Fiji, Papua New Guinea, Solomon Islands, Vanuatu, and New Caledonia, is the largest sub-region, with approximately 9.6 million people, compared with 526,000 in Micronesia and 684,000 in Polynesia (excluding New Zealand) in 2016 (Ramos, n.d.). Fiji's TFR has dropped slowly over the past several decades to reach approximately 2.6 in 2020 (see Fig. 13.1), driven by economic development and a long-established family planning program. Fiji's island economy mainly comprises subsistence and commercial sectors, with the latter being heavily invested in the production of exports (Gounder et al., 2019). One distinctive characteristic of the Fijian population is the different mortality, fertility, and migration patterns of its two main ethnic groups: indigenous Fijians (*i-Taukei*) and Indo-Fijians (UNFPA, 2014). The TFR is 3.2 among *i-Taukei* and 1.9 among Indo-Fijians (UNFPA, 2014) while the latter group also has higher rates of emigration and lower rates of mortality. The fertility transition is not complete in Fiji; although contraceptive prevalence increased from 44.8% in 1990 to 51.7% in 2010 (Alkema et al., 2013), it has remained stable since then and there exists unmet need for contraception (UNFPA, 2014). In New Caledonia and Guam, territories of France and the U.S. respectively, the fertility transition has also occurred, driven by increased levels of economic development and family planning programs as well as high levels of international immigration. The TFR dropped to replacement level in New Caledonia after 2010, and has continued to decline (see Fig. 13.1).

Despite this, in most Pacific Island states, low levels of economic development, lack of

widespread access to education, and continued lack of contraceptive access mean that the fertility transition, although currently in progress, has been slow to occur or even stalled. For example, primary school enrolment rates in most territories in Melanesia were between only 30% and 40% in 2008, since the majority of primary education occurs in small, expensive, and isolated remote schools (Coxon & Munce, 2008). Population policies in the region have focused on mitigating the effects of high fertility rates, accompanying rapid population growth and a very young population. The majority of the population, in territories such as PNG and Solomon Islands, continue to rely on traditional and less effective contraceptive methods, reflecting an inability to access proper family planning, which is especially problematic for younger unmarried women (Dockalova et al., 2016; Kennedy et al., 2011).

Papua-New Guinea (PNG) has one of the highest fertility rates in the world and one of the lowest modern contraceptive prevalence rates (Gupta et al., 2020). The TFR in PNG is predicted to decrease slowly from 4.15 in 2020 to 3.32 in 2040 while the population size continues to increase.

Solomon Islands has proposed policy objectives to facilitate a better harmonization between population and development with an improved quality of life. While the government subsidizes contraceptives, people in remote areas continue to suffer from access-related monetary and time costs in relation to access to health centers, child care, or clinics (Harrington et al., 2020). To target the cultural barrier of gender negotiations (e.g., men not willing to access family planning service), the Solomon Islands government piloted the Male Involvement in Reproductive Health (MIRH) initiative in 2005, encouraging male involvement in family planning for maternal and child health (Harrington et al., 2020). Moreover, the Solomon Islands government has been committed to emphasizing the role of men in voluntary family planning to facilitate the Family Planning 2020 initiative (*Family Planning 2020 Country Action: Opportunities, Challenges, and Priorities – Solomon Islands*, n.d.). However,

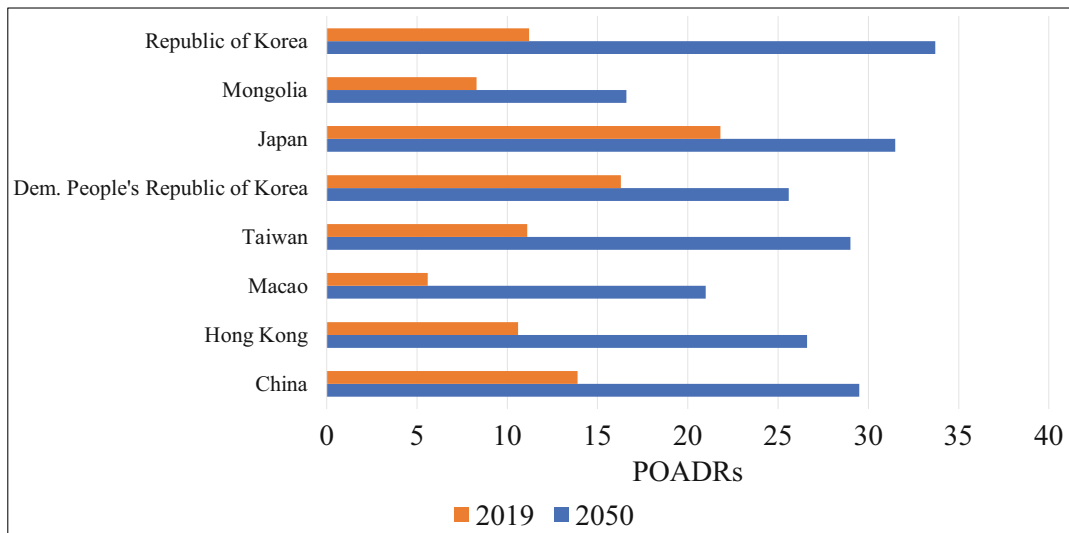


while the TFR in the Solomon Islands is expected to decline it will remain high, from 4.15 in 2020 to 3.32 in 2040 (see Fig. 13.1). In many other Pacific Islands too, fertility rates remain high; in 2008, total fertility rates were 4.5 in Vanuatu, 4.6 in Samoa, 4.5 in Tokelau, and 4.4 in the Marshall Islands (Haberhorn, 2008). In contrast to East Asia, the aging picture is diverse in Oceania. In the less developed territories in the Pacific where the fertility transition is still in progress, population concerns continue to be population growth or stagnation. The OADRs in the Pacific region are expected to remain stable in the coming decades, with the exception of New Caledonia and Fiji, which exhibited a slight upward trend (see Fig. 13.2). The OADRs in these islands are projected to slowly increase until 2060.

### Reappraisal of Recent Population Policies: Aging, Human Capital, and Migration

Despite the “doom and gloom” scenarios often painted about the future of rapidly aging societies and the end of the demographic dividend, there is

reason to cautiously paint a more optimistic picture. Dealing with the new aging population requires a multi-dimensional, holistic set of policies which include strengthening pension, healthcare, and long-term care systems, and a reconceptualization of what it means to age. New indicators of aging have been proposed which measure aging prospectively; and these new indicators take into account improvements in life expectancy and health for all ages (Sanderson & Scherbov, 2008, 2010). They propose calculating a “prospective age” which calculates a remaining life expectancy (RLE) and sets the boundary of aging to begin at 15 years RLE. The Prospective Old Age Dependency Ratio (POADR) is the size of population with an age above the cut-off for RLE, divided by the size of the population aged between 20 and the cut-off point. When POADRs are taken into account, Taiwan, South Korea, Macao, Hong Kong, and Japan have significantly less dramatic switches to a state of ‘dependency’ (Scherbov et al., 2016), as seen in Fig. 13.3. Alongside changes to measures of aging, a range of holistic and multi-dimensional government policies will be required in light of the new population structure. The OECD’s latest report on aging societies recommends that governments



**Fig. 13.3** Prospective old-age dependency ratios (POADRs): East Asia, 2019 and 2050. (Note: A ‘prospective age’ is calculated based on a remaining life expectancy (RLE) and the boundary of aging at 15 years RLE.

The POADR is the size of population with an age above the cut-off point for RLE, divided by the size of the population aged between 20 and the cut-off for RLE. Source: United Nations, 2019)

should focus on: “... *improving the design of public pensions, incentivizing private savings, enhancing the efficiency of health care provision, expanding the coverage of social security systems, promoting employability and skills of older workers, and striving for a better labor market inclusion of women, youth and migrants*” (Fiscal Challenges and Inclusive Growth in Ageing Societies, 2019: 5).

Population-related policies and programs which deal with a new aging population will therefore focus on labor market regulations, pension and financial policies, healthcare and long-term care, and human capital development.

### Labor Market Policies

In order to increase the size of the working population, governments will need to design policies that can reduce the gender gap in labor force participation rates and wages, improve the quality of jobs for low-skilled and younger workers, and improve job opportunities and job quality for older workers (Rouzet et al., 2019). Increased longevity means that people may have significantly longer working lives in the future. Figure 13.4 shows labor force projections to 2060, which are projected to decline in most territories in East Asia in the next decades but remain relatively stable in China and the territories in Oceania.

In South Korea, the region’s most rapidly aging country, extending working lives will be a key consideration. Three out of every five of those aged 65–69 in South Korea work in non-permanent job positions, which is around three times the average for the rest of the OECD. Due to wage-setting practices based on seniority, many South Korean workers are pushed out of their main career in their 50s and turn to temporary or non-regular jobs which are of lower quality and often operate in a regulatory “grey area” leading to greater job insecurity and higher risks of poverty (OECD, 2018b). Key policy priorities are to encourage employers to retain and hire older workers, reduce the use of early retirement plans as well as tackle seniority-based wage setting

practices, and strengthen social protection systems (OECD, 2018b). Social protection measures, which can care for an individual throughout their life-course including spells of unemployment, are still in their infancy, and South Korea is thus still relying heavily on labor regulations and collective agreements to protect jobs (OECD, 2018b). The South Korean government’s National Competency Standards aim to help measure and reward skills and competencies rather than seniority, however, they have not yet been thoroughly implemented (OECD, 2018b).

In Japan, labor market reforms put in place in 2004 through the Stabilization of Employment of Older Persons have improved employment rates for older workers; however, job conditions, benefits, and wages have declined for older workers (OECD, 2018a). Similar to South Korea, steeply increasing seniority-based pay remains a barrier which prevents companies from choosing to extend the mandatory retirement age. A second important area of policy reform is to increase female labor force participation. In 2013, Prime Minister Shinzo Abe unveiled his “Womenomics” policy aiming to increase the proportion of women in full-time regular work, as well as those in executive positions, with the main goal being to stimulate the economy and private investment. Reforms to increase women’s labor force rates have included enhancing child care, reducing long work hours, and increasing the abilities for workers to combine work with care (OECD, 2018a). In line with this, Work Style Reform, a legislative reform package, seeks to reduce the amount of overtime work; however, the penalties provided for companies that exceed limits or do not follow the regulations are limited (OECD, 2018a). In short, it is yet to be seen whether these policies will have a long-term effect on women’s labor force participation rates.

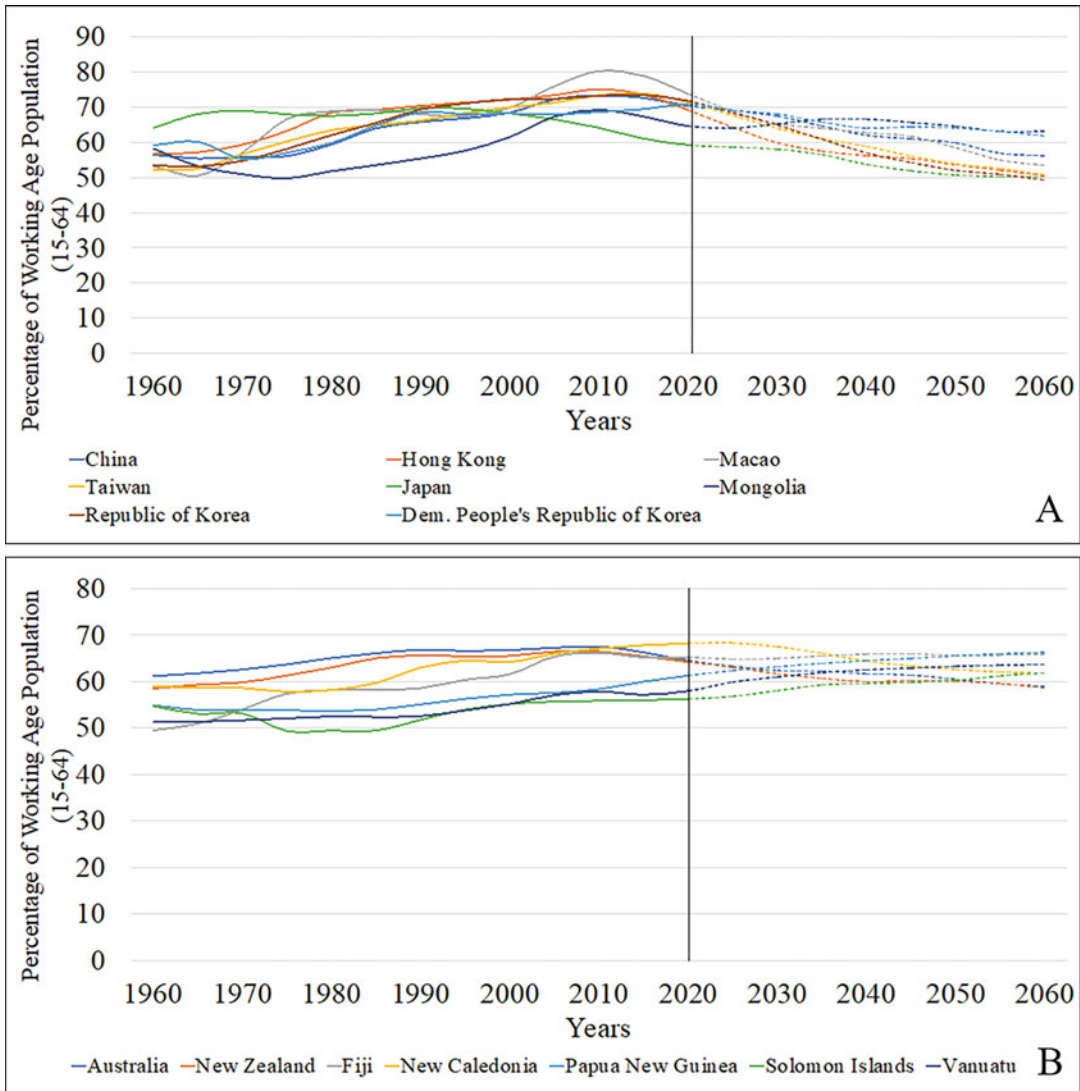
### Pension Policies

Pension schemes are another policy area which will be the subject of significant attention in the coming decades. Territories in the region have a

diverse set of pension policies and systems, yet share the common challenge of attaining a sustainable level of public debt while ensuring growth of funds, without increasing old-age poverty (Rouzet et al., 2019). One key component of policy reform will be raising the retirement age, but also offering flexibility so that people can choose whether to retire or not, or

combine work with a pension entitlement (Rouzet et al., 2019).

In China, the current public pension system has two branches. One is Enterprise Employee Basic Pension (EEBP), an employment-based scheme designed for workers in urban areas. This scheme is operated in a mixed-mode combining pay-as-you-go (PAYG) and fully-funded



**Fig. 13.4** Percentage of traditionally defined ‘working age population’ (15–64) in East Asia and Oceania, 1960–2060 (a) Major territories in East Asia, (b) Australia, New Zealand, and Major territories in Melanesia, (c) Major territories in Micronesia, and (d) Major territories in Polynesia. (Notes: (1) the projection

of the percentage of working age population is the UN Medium variant projection, (2) the dashed lines are the projection figures, and (3) the territory selection is based on the territories detailed in the UN World Population Prospects 2019. Source: United Nations, 2019)

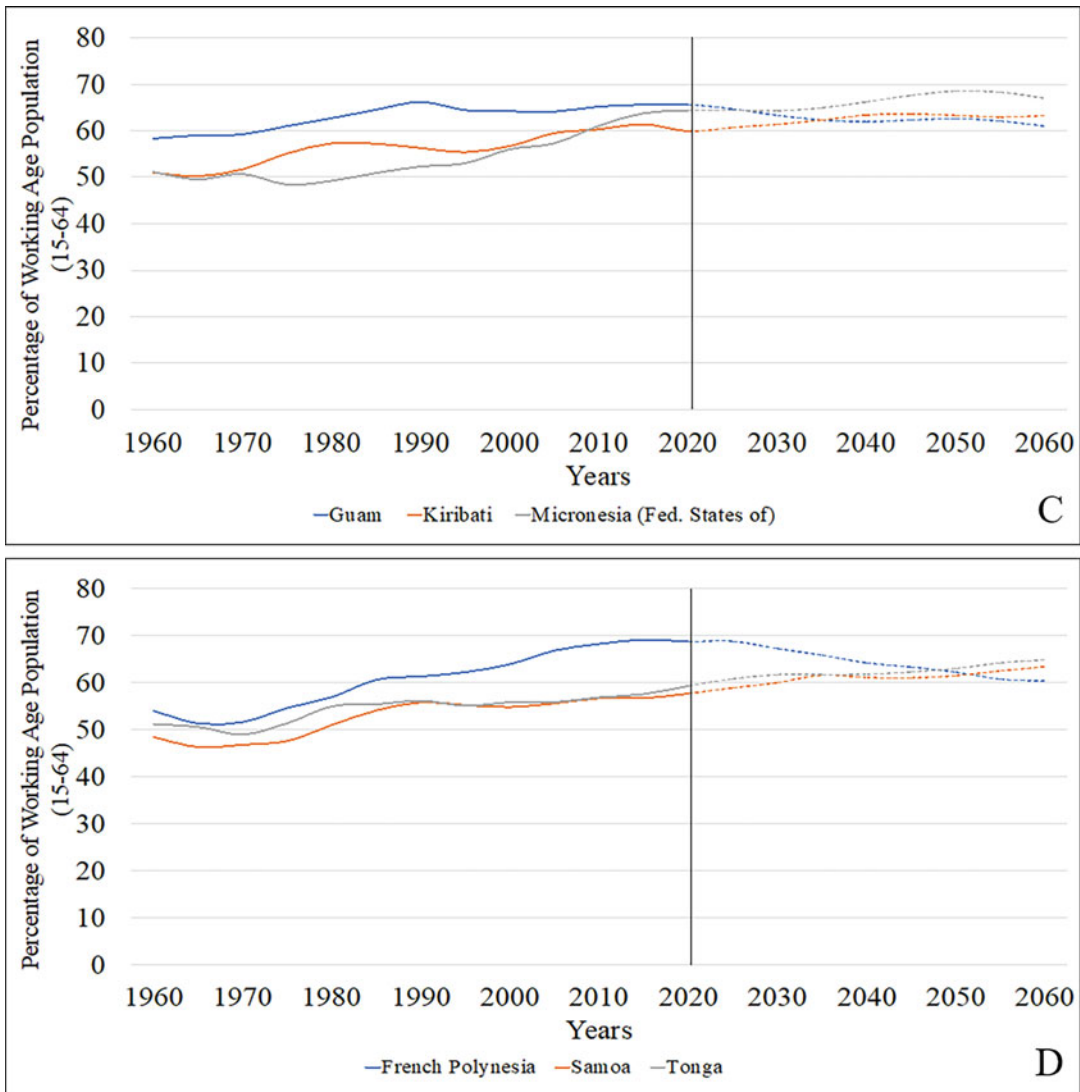


Fig. 13.4 (continued)

principles in risk pooling (Zhu & Walker, 2018). Both employers and employees have to contribute to the scheme. The part contributed by the employers will go to the basic pension fund managed by prefectural social security bureaus; the part contributed by employees will go to their individual accounts. Upon retirement, the benefit level depends on the local average wage, the employee’s salary before retirement, and their contribution history (He et al., 2020). The second branch of the pension system was established recently, in 2009. The Urban-Rural Resident

Social Pension was set up to bring rural residents and those urban residents without formal work into the social protection net. This scheme is financed by both central and local governments and individuals. However, its recipients get flat rate benefits determined by the local economic development level. This arrangement results in large regional disparities among localities (Zhu & Walker, 2018). Besides the social insurance system, the Chinese government has also established other social assistance schemes (e.g., “*dibao*” and “*wubao*”) to provide income and

in-kind protection to the poor, including the poor elderly who also have limited or no family support (Glinskaya & Feng, 2018).

South Korea has a dual system to provide income security to the old-age population. There are four public pension schemes. The National Pension Scheme (NPS) is a partially funded, defined-benefit system which only covers those with formal jobs. There are three independent-operated funds for public sector employees: The Government Employees Pension System, The Military Personnel Pension System, and The Private School Teachers Pension System (Shin & Do, 2015). These schemes operate according to the pay-as-you-go principle and are earnings-related. Two programs consist of the safety net for low-income elderly. The Basic Livelihood Security Program was established in 1999 to provide income protection for those who live in absolute poverty and have no potential assistance from the family. Although it was designed for the general public, senior citizens account for a significant proportion of the recipients (Shin & Do, 2015). The other program is the Basic Old Age Pension, which was introduced in 2008. As it was designed to increase the low coverage of income support systems for the elderly, this program covered 70% of the population of older people who are in poverty (Shin & Do, 2015).

The public pension system in Japan has two tiers. The first one is the National Pension which has universal coverage and provides a flat-rate basic benefit to all citizens (Choon et al., 2008). It requires mandatory participation for age 20–59, except for low-income individuals and housewives who are exempted from paying premiums partly or totally. It is a partial pay-as-you-go program as two-thirds of the benefits are paid out from the contribution of the current working employees and the remainder from the government (Choon et al., 2008). The benefit is paid at a flat rate for every participant. The second one is the Employees' Pension Insurance. This scheme is income-related and applied to employees from private companies. Mutual aid pensions are the employees' pension insurance that apply to public sector employees. All of the employees' pension insurance plans are pay-as-you-go defined-benefit

programs. Employees and employers pay 8.67% of their salary to the fund (Choon et al., 2008). Benefits are related to average salary over the working period. Employers who have at least 1000 employees could contract out from the Employees' Pension Insurance; however, they need to guarantee at least 150% of the benefit that the public scheme would have provided. Social assistance in Japan guarantees a minimum living standard for all citizens including the elderly.

In Taiwan, the public pension system is rather fragmented consisting of various schemes (Shi, 2010). There are two schemes for employees from public sectors. Both of them are operated as defined-benefit funds, funded by contributions by both employees (of 35%) and employers (of 65%) based on certain rates of a workers' salary. The Government Employees' and School Staffs' Insurance provides disability, death, and retirement benefits; civil servants, teachers, and military personnel are covered by the Public Service Pension Fund. Retirement age is set at 65 years, unless for situations that are specified otherwise. Benefits are paid as a lump sum for both funds, except for those who contributed for more than 25 years under the Public Service Pension Fund who could choose to be paid monthly or a combination of both. There are three pension schemes for employees from the private sector (Shao, 2010). The Labour Insurance covers all the labor relevant welfare including retirement income protection. Monthly contributions are based on the workers' salary and are shared by employees (20%), employers (70%), and the government (10%). The self-employed contribute 60%, while the government covers the remaining 40%. The second one is the Old Labour Pension Fund, which is funded only by the employers. Their contribution goes to a separate accumulated account for the participating company. However, only those who have worked for the same employer for more than 25 years (or 15 years for those who are 55 years old) could receive the benefit. Therefore, in 2004, Taiwan introduced the New Labour Pension Scheme, which is a defined-contribution scheme with fully portable individual accounts. For this

scheme, employers should contribute at least 6% of employees' salaries to employees' accounts, while employees' contribution is voluntary. Employees could decide the benefit to be paid as a lump sum or annuity if they have contributed for more than 15 years; otherwise, they will be paid as a lump sum. The Old Age Allowance is a social welfare program for elderly who are in poverty. Means-testing is required; however, unlike in Hong Kong and South Korea, this assessment is done at an individual level, not household level, and does not require declaration on lack of possible family support (Choi & Kim, 2010).

Existing retirement protection in Hong Kong consists of two sources: social security schemes financed by the government and a mandatory private-run pension scheme. Social security schemes include Comprehensive Social Security Assistance (CSSA), Old Age Living Allowance (OALA), Old Age Allowance (OAA), Normal disability Allowance (NDA), and Higher Disability Allowance (HDA). Individuals could only receive benefits from one of the above schemes. Except for CSSA and OALA, allowances from the other schemes are not means-tested but have certain requirements (on age and disability) for eligibility. The Mandatory Provident Fund (MPF) was launched in 2000. It is a defined-contribution system that is run by the private sector. Both employees and employers contribute 5% of the employee's monthly salary to the individual account. Withdrawal from the fund could be a lump sum or annuity, but is only allowed after age 65, unless there is work-ending illness or other legitimate reasons.

Compared to post-industrialized East Asian territories, Australia and New Zealand have a more developed pension and savings regime. In Australia, the pension system includes a means-tested pension, a mandatory employer's contribution to private pension savings, and a voluntary savings and superannuation system that receives tax benefits (OECD, 2019). In New Zealand, private employer pension contributions have been declining while private voluntary savings schemes' contributions have increased. Public pension allowances are a series of flat rate

payments which are determined by age and a residency test (OECD, 2019).

## Healthcare and Long-Term Care Systems

Population aging will drive increased demands on healthcare and also requirements for long-term care provision.

In East Asia, 'filial piety', the focus on the family that includes caring for parents in old age, continues to be prioritized over institutionalized care, and uptake of institutionalized care places is small but growing. Long-term care policies and provisions have been enacted only in recent decades, and the sector is still developing in the region. Japan was the first country in Asia that introduced Long-Term Care Insurance (LTCI) in 2000. Municipalities play the role as the insurers for LTCI and are responsible for setting details such as budgets and premium levels for beneficiaries. There are two funding sources for the LTCI program: tax revenues account for 50%, and premiums and co-payments from individuals aged 40 and above account for the other half. Eligibility is first determined by a local government employee according to a 79-item form, and then reviewed by a local expert committee. Services provided are either institutional care or community-based care (Rhee et al., 2015). South Korea implemented the LTCI program in 2008 using a social insurance framework. There are four sources that finance these services. First, all participants in the National Health Insurance system contribute to the insurance. Second, the government supplements this with 20% of anticipated contribution receipts, via additional funding from general taxes. On the top of that, state and local governments contribute to the program for those who are eligible for welfare benefits. Lastly, service users pay 15% of costs for home care services and 20% for institutional care services. Benefits of LTCI are eligible for those who are 65 or older or are younger than 65 and suffering from a "geriatric disease" such as Alzheimer's. There are four main categories of benefits provided by the South Korean LTCI: facility benefits, in-home benefits,

assistive device benefits, and special cash benefits. Cash benefits are seldom provided—for example, when there is a lack of service providers in the beneficiary’s neighborhood (Rhee et al., 2015).

The system of long-term care in Taiwan largely depended on the informal sector until 2007. Family and private LTC institutions are the main sources of the provision. The government mainly played the role of regulation, except when in 1992 the Council of Labour Affairs initiated a foreign worker import project to open up the source of LTC provision from the market by allowing foreign workers to be employed in the domestic worker market (Lee & Wang, 1996). To facilitate developing a universal community-based LTC system, in 2007, the government introduced the first Ten-year Long-term Care Plan and subsidized the plan from general tax revenues (Wang & Tsay, 2012). However, a very low utilization rate triggered its reform into a social insurance model in 2016. The new LTCI scheme is operated in a way that is identical to the National Health Insurance (NHI), except that the premium rate would be approximately 25% that of the NHI (Yeh, 2020).

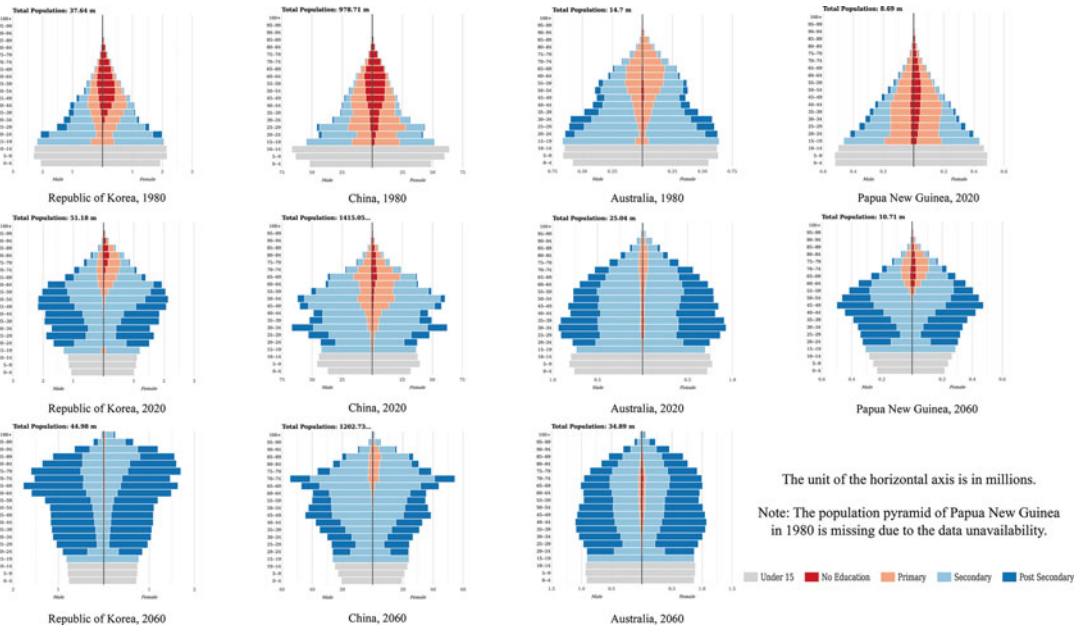
China only started experimenting with long-term care insurance in 2016, and 15 cities were selected to launch the policy pilots and two provinces were selected as the key contact province. The current Basic Medical Insurance serves as the blueprint for developing the new social insurance program; risk pooling of the new insurance program follows the current Basic Medical Insurance system, and in addition, the start-up capital of the new insurance program is mainly the transfer from the Basic Medical Insurance fund (Yang et al., 2016). The implementation baseline regarding coverage, revenue collection, reimbursement rate, fundraising, and eligibility was given by the “The General Guidance on Implementation of Policy Experiment for LTC Insurance” published by the Ministry of Human Resource and Social Security. Local jurisdictions that have been selected as official experiment points were given the discretionary power to try out the new program according to their local socioeconomic conditions. By September 2020, fourteen more cities were included in the scope

of the experiment, which means that it covers 28 provinces of China (National Healthcare Security Administration & Ministry of Finance, 2020).

## Human Capital and Development

In Fig. 13.5, we show the historical and projected population pyramids by educational achievement for South Korea, China, Australia, and Papua New Guinea, from 1980 to 2060. Despite general pessimism about the prospects of an aging society, there is reason to paint a more hopeful future. In most post-industrialized states, the demographic transition to a lower fertility and aging population has been accompanied by an unprecedented increase in human capital and higher educational attainment. In South Korea, for example, around 70% of the cohort aged 25–34 years have a university degree in 2019, the highest in the OECD (2020), with a huge increase in tertiary educational qualifications for women. South Korean families spend vast amounts of money on private secondary education, private tutoring, and extra-curricular activities in order to secure places at the best schools and achieve places at the top-ranked universities. National spending on private tutoring services alone was estimated at one to 2% of GDP, compared to 1.5% of GDP spent on the entirety of tertiary education in other OECD states (Anderson & Kohler, 2013).

There are therefore reasons to be more optimistic about the prospects of a society in which people have significantly higher life expectancy than in the past and, along with it, significantly improved educational opportunities. Education policy, however, will also need to adapt in the future in order to cope with an aging population with longer working lifespans, in the context of technological progress and rapidly changing labor markets. It will not be sufficient to rely upon only initial educational credentials to last throughout a long career but policy and public investment in education, training, and skills development throughout the life course will be required as well (Rouzet et al., 2019). Investments and public reform in health,



**Fig. 13.5** Population by age, sex and educational attainment in Republic of Korea, China, Australia, and Papua New Guinea for 1980, 2020, and 2060 (Medium [SSP2]). (Source: Lutz et al., 2018)

education, and innovation could help to increase productivity in aging societies, and it is possible that firm automation and technology may be able to somewhat offset labor shortages (Rouzet et al., 2019).

Following the pledge to leave no one behind contained in the United Nations 2030 Agenda for Sustainable Development (United Nations Committee for Development Policy, 2018), the human capital revolution, however, has not occurred in all countries in the region—most notably in the Pacific islands. In Papua New Guinea, child and infant mortality remains highly problematic. Mortality rates for those aged under five dropped but remained high, decreasing from 79.5 per 1000 live births in 1990 to 52.9 in 2018 (Wang et al., 2020). There is a continued lack of medical support and maternal healthcare in rural areas. Mortality differences between rural and urban provinces are large. Coverage of Community Health Posts, a health facility and service, has been deteriorating, which is linked to the continued high level of morbidity and mortality, according to the Papua New Guinea National Population Policy 2015–2024 (Department of

National Planning and Monitoring of Papua New Guinea, 2015). Low levels of economic development and continued high fertility rates with an accompanying young and growing population remain key demographic challenges. There exists a lack of universal basic education, and significant drop-out rate after primary schools. The TFR in the region remains high, but, driven by reproductive health programs, are expected to drop from 3.3 in 2025 to 2.6 in 2050. Nonetheless, the population is expected to continue growing until at least 2070. The total population of the region will increase to 12.9 million in 2030 and 16.8 million in 2050, with a significant increase in the working age population (United Nations, 2017).

### Migration

An alternative and contested approach to tackling future labor shortages linked to an aging population is migration. In Australia and New Zealand, foreign immigration, mostly from white majority territories such as the United Kingdom and other



European territories, was a key part of population change since the twentieth century, which contributed to overall population growth despite falling fertility rates. In the twenty-first century, however, immigration policy has been tailored towards strategic economic interests and labor needs, with increasing numbers of migrants arriving from Asia. In China, while foreign immigration remains low, economic growth and population change has been spurred by internal temporary labor migration over the past decades. A change to the *Hukou* system in 2014 is likely to lead to a further increase in the urbanization rate as well as a more equalized citizenship status for the migrant population. China has been the main source of immigrant arrivals in Hong Kong and Taiwan since the Chinese Civil War, with increasing numbers of migrants arriving from Southeast Asia in the past decades to fill low-waged labor needs. In Japan and South Korea, foreign immigration remains low but is slowly increasing in order to meet labor shortages. Finally, but perhaps most critically, climate migration is an increasing concern for less developed nations in these two regions such as the Pacific Islands and Mongolia, and future policies will be required to mitigate these effects.

### Internal Migration in China

The evolution of the household registration (*Hukou*) system defines the situation of internal migration in China. The *Hukou* system serves as the instrument for the central government to allocate resources and control population mobility to shape the state's developmental priorities, and for local governments to grant a variety of exclusive social rights, such as access to public services and social welfare (Cheng & Selden, 1994). The *Hukou* system was first introduced in urban China in 1951 and extended to rural areas in 1955. However, the "Regulations on Household Registration in the People's Republic of China", which was promulgated in 1958, defines the fundamental rural-urban dual-classification structure of China's *Hukou* system (Standing Committee of the National People's Congress, 1958). This structure had profound influences on population mobility within China for almost six decades until

it was abolished in 2014. The emphasis of *Hukou* policy before the "Opening-up" reform was to limit rural populations from migrating to urban areas. The major rationale was political-economics, which is to support the development of heavy industry (White, 1977). Without enough capital accumulation from the light industry sector, agriculture was left as the single source to support investment in heavy industries, and the state adopted an "unequal exchange" between the agricultural and industrial sectors (Chan & Zhang, 1999) to direct earnings to that investment. Consequently institutionally-embedded inequality occurred between the rural and urban areas as the State took the responsibility of ensuring jobs, social welfare, and food supply in the urban areas. To maintain such an imbalanced development and prevent people from "rushing towards resources", the *Hukou* system therefore served as the mechanism that blocked the in-flow of population from rural to urban areas. Meanwhile, the three-year famine from 1959 to 1961 triggered a serious crisis on food supply. In 1961, the central government decided to use political and legislative measures to urge people to go back to rural areas and engage in agricultural production (CCCP, 1961). From 1961 to 1965, the urban population in China decreased by 4.41% each year on average (Lu, 2002). This was subsequently followed by the Cultural Revolution, during which a substantial amount of educated youths were sent down to the countryside; as a consequence, the de-urbanization process was further intensified in China.

As the Cultural Revolution ended in 1976, society as well as government reflected on the previous radical political mistakes. The focus turned to economic development with the adoption of gradual reforms. Since then, the channels for rural-urban migration slowly opened-up. From 1977, youths were able to restore their non-agricultural *Hukou* status as well as resume their previous positions. In the same year, the State Council issued a new regulation which set up a certain annual quota for transferring agricultural *Hukou* to non-agricultural *Hukou* (The State Council of PRC, 1977). This channel was called "*nongzhuangfei*", the quota was set as 0.15% of

the non-agricultural population and later increase to 0.2% (Chan & Buckingham, 2008). In 1984, the State council further relaxed the restrictions on migration by allowing rural residents to live in specified towns as long as they were employed or ran a business and have accommodations (The State Council of PRC, 1984). However, they were not given urban *Hukou* and even have to give up the land they have in the rural area.

Meanwhile, in the late 1970s, China started initiating a gradual reform from a planned economy towards a market economy. Significant changes in social, economic, and political institutions led to some important reforms on the *Hukou* system as well. Since 1978, restrictions on internal mobilization gradually relaxed, allowing rural residents to work or run businesses in urban areas. On the one hand, the introduction of the household responsibility system largely increased agricultural productivity and freed up a substantial amount of labor from rural areas (Lin, 1988). On the other hand, the “Opening-up” reform created a lot of job opportunities in urban areas, particularly coastal regions where foreign investment flowed in (Liang & White, 1997). Therefore, during this period China experienced a significant increase in rural-urban migration resulting in a substantial “floating population” living in cities but without full residence rights, and an increase in the urbanization rate.

The relaxation on mobility restrictions came under the banner of the “Opening-up” reform, which incentivized an internal migration fever. As policies favorable to foreign investment and industrialization were mostly first experimented with in the coastal region, particularly the Southeast, job opportunities attracted significant amounts of rural-*Hukou* labor to migrate to these destinations. By the mid-1990s, migrant workers became the backbone of China’s export industry. Although the increase of migrants became steady in recent years, in 2019, migrant workers in China still accounted for more than 20% of the total population and around 35% of the Chinese labor force (Textor, 2020). Though this population played a key role in China’s economic development by providing low-cost labor, for a long time

they were socially disadvantaged. The unique aspect of migration within China is that physical mobilization from one place to another does not guarantee *Hukou* (as well as citizenship) at the migration destination. Those who move to a new place but do not possess local *Hukou* are called the “floating population” of migrant workers. While *Hukou* in China links to access to a variety of public services, the “floating population” and their family were basically completely excluded from the local social welfare institutions such as education, public healthcare, and other public services (Chan, 2009).

The year 2014 marked an important milestone for China’s *Hukou* system as the State Council announced the termination of the distinction between agricultural and non-agricultural *Hukou* (The State Council of PRC, 2014b). This termination signaled the end of the rural-urban dual classification structure of the *Hukou* system that had been in place since the 1950s. This reform is in line with the current leadership’s aspiration of promoting urbanization and to increase the urban population to 60% by 2020 (The State Council of PRC, 2014a). In order to further equalize access to local public services, the central government initiated in 2016 the “Interim Regulations on Residence Certificate” to replace the temporary residence certificate. Restrictions on changing *Hukou* were further lifted, as the National Development and Reform Commission issued in 2019 directives to further facilitate the reform on the *Hukou* system (The Nation Development and Reform Commission of PRC, 2019). The country decided to entirely eliminate restrictions on acquiring a *Hukou* in small-size cities whose regular residential population are from one to three million; to fully lift conditions required for *Hukou* registration in medium-size cities (regular residential population are between three and five million); and increase the size of *Hukou* issuance in large-size (regular residential population between five and ten million) and mega-cities (ten million or more). Although it is yet early to make a solid conclusion on the population consequences of the new *Hukou* reform, we might expect a period of rapid urbanization in China’s future (Chen et al., 2017).

### **Immigration Policy in Australia and New Zealand**

In the past two decades, immigration policies in Australia and New Zealand became more sensitive to economic outcomes. From family class-based and human capital models, there has been a shift toward meeting specific labor needs. In 2003, New Zealand introduced a novel “Expression of Interest” (EOI) model to select skilled immigrants, which Australia adopted about a decade later in 2012. Such policy innovation is important to attract more skilled migrants; and more territories followed this migration policy direction, intensifying international competition (Bedford & Spoonley, 2014). Scholars have also noted that specific labor market needs include temporary worker programs designed to fill the shortages in both high and low skilled labor; efforts to retain international students; and regional policies to better address local labor market needs in the peripheries of the main urban centers (Akbari & MacDonald, 2014).

The turn of the Millennium ushered in globalization (through the internationalization of labor markets, the growth of transnational companies which can easily allow the transfer of their workforce between countries, affordability of international travel, and technological innovations that can allow people to maintain close and regular communication with their families and friends in their homeland). This facilitated the rise of temporary migration in Australia and New Zealand (Bedford, 2003; Hugo, 2006). Temporary migration in these territories was further fueled by the increase of international students. There is a growing body of literature that highlights the increasing significance of temporary migrants becoming permanent residents. In fact, for the period 2008–2009, 35% of migrants in Australia who obtained permanent residency were already in the country holding temporary residence visas and the proportion is much higher in New Zealand for the same period at 83% (Hawthorne, 2011). Both territories have increasingly realized the importance of international students as a prospective pool of skilled migrants, therefore, incorporating in their new migration

policies provisions to encourage this pool to stay. For example, Australia instituted a study-migration pathway. Even with the absence of a comprehensive population policy, the strengths of Australia and New Zealand in managing their populations rest on the readiness and willingness of their respective governments to tweak elements of their migration policy while taking into account both internal and external developments.

### **Immigration Policy in East Asia**

Although internal migration has been key to population changes in the past decades in East Asia, many territories have been slow to open up to foreign immigration, particularly Japan and South Korea. In Taiwan and Hong Kong, foreign immigration occurred in waves, with most migrants arriving from mainland China after World War II and in the subsequent decades. Since the 1970s and 1980s, these states have also opened up more to labor migrants, most predominantly from Southeast Asia, who have helped to fill labor shortages. Governments in the region have played a very active role in shaping migration flows (Fong & Shibuya, 2020). In general, low-skilled workers are recruited through temporary “guest worker” schemes which prevent migrants from settling permanently or obtaining citizenship, such as Hong Kong’s Foreign Domestic Worker scheme which prescribes a fixed Standard Employment Contract governing the wages, accommodation arrangements, and immigration guidelines for migrant domestic workers (Standard Employment Contract and Terms of Employment for Helpers, 2020). In Taiwan, programs such as the Key National Development Construction Projects in 1989 and the Major Public Construction Projects in 1992 as well as the ongoing Foreign Domestic Worker Import program have targeted specific industries facing low-skilled labor shortages (Fong & Shibuya, 2020). In Japan, the foreign migrant population remains small but is growing; the proportion of the population who are foreign-born rose from 0.88% in 1990 to 1.6% in 2015 (The World Bank DataBank, 2020).

## Climate Migration

The physical environments of the Pacific islands make them vulnerable to climate change and several territories have been challenged by recent environmental crises (Campbell, 2014), namely increases in sea level, saltwater intrusion, environmental migration, ocean acidification, and unstable weather phenomena. It was projected that up to 1.7 million people in the South Pacific could be displaced by the influence of climate change by 2050 (Ramos, n.d.). The number of deaths attributable to weather-related disasters has risen by over 21% since the 1980s (Locke, 2009). With the rising sea levels, saltwater intrusion has been a prominent threat to long-term food and water security in Melanesia. While Melanesian people mainly rely on the agricultural and fisheries industries (these account for around 30% of GDP of Melanesian territories according to the Asian Development Bank in 2011; see Gillett, 2011), saltwater could damage the low-lying land crops and groundwater resources. In addition, coral bleaching due to ocean warming has reduced the biodiversity of the marine ecosystem, resulting in a large decrease of fish stocks (Ramos, n.d.). Moreover, extreme weather conditions such as floods, droughts, and tropical cyclones have been environmental stressors for Melanesia in the long run. The long-term food security and water security issues exacerbated by climate change have caused many small island populations in the Pacific to migrate to nearby islands (Locke, 2009). In February 2016, cyclone Winston hit Fiji reducing its GDP by 31% and 40% of the population were affected (Ramos, n.d.). The cyclone destroyed agricultural crops and fish and livestock sectors, depleting food resources, while water and sanitation infrastructure collapsed leaving many without access to safe drinking water and proper sanitation. In the 1970s, the population of Banaba, which is a phosphate-rich island under Kiribati, was relocated to Rabi Island in Fiji, spurred by environmental causes (Locke, 2009). Given

worsening climate change, this type of tragedy is expected to occur more often, leading to increasing migration. While the food and water insecurity patterns in the sub-regions in the Pacific islands keep facing serious political, social, and economic challenges, Australia is said to play a major and crucial role to proactively engage for the long-term strategy of maintaining regional stability and prosperity because of its financial power and extensive resources (Ramos, n.d.). One particular regional issue would be addressing the food and water security challenges among the Pacific Islands in the forthcoming decades. It is anticipated that under the common climate-change discourse of 'mitigation and adaptation', given the limitations of international bodies to significantly control greenhouse gas emissions, adaptation has become the increasingly urgent response option in the Pacific Islands (Campbell, 2014). Relocation is considered a last resort, yet is an increasingly common adaptation option in recent decades (Webber & Barnett, 2010).

In Mongolia, more than 550,000 people have moved to the capital Ulaanbaatar from rural areas since 2000, representing one third of the city's population (Schoening, 2020). An increasing number of extreme weather events such as winter storms and climate change have made living conditions increasingly difficult for the territory's rural nomadic population. For example, almost one quarter of the territory's livestock were killed during the winter storm of 2009 to 2010, severely exacerbating levels of poverty in rural areas (Schoening, 2020). Government policies that attempted to stem migration flows by disallowing migrants to register in the city have not slowed down migration rates, and have left migrants marginalized without access to public services and social benefits (International Organization for Migration, 2018). As the prevalence of extreme weather events increases, the need for more comprehensive policies such as insurance that might help to mitigate the effects of disasters, as well as social welfare policies, will be essential.

## Population Policies in East Asia and Oceania

This chapter has reviewed population policies in East Asia and Oceania from the mid-twentieth century to the present. In the Pacific Islands, the fertility transition remains incomplete and fertility rates have declined slowly despite the moderate success of family planning and development programs. Low levels of education, high infant mortality, and lack of contraceptive access in rural areas remain key problems in island nations such as Papua New Guinea and Solomon Islands. The focus of population policies in the coming decades should be on improving livelihoods, access to healthcare and family planning, and education. Emigration of skilled workers continues to be a problem in the Pacific islands, and in the future policies will also need to mitigate the effects of climate migration, which will become ever more critical. In Australia and New Zealand, family policy in the twentieth century focused not just on family-planning but also on social welfare. Population change in both countries was marked by relatively slowly decreasing fertility rates, with consistently high levels of immigration. In recent years, immigration policy has shifted towards fulfilling economic goals, with migration pathways being opened up for workers with specific skill sets and attributes to meet labor shortages, or for international students. Policies which deal with an aging population are also becoming more important in both Australia and New Zealand, in particular, pension, healthcare, and long-term care programming.

China's population policies are truly distinct, and have been closely influenced by the political and economic agenda of the time. Before China's economic reform, pronatalism and strict restrictions on rural-urban migration served communist ideology and the economic emphasis on heavy industry. After economic reform in the late 1970s, the Chinese government adopted one of the most coercive and restrictive global approaches to family planning, the One-Child policy, and also began opening up new channels of temporary internal migration for those of

working age. These policies supported the new focus on rapid economic growth and poverty alleviation. However, in the long run these population policies have had long lasting effects on families and the society at large. In the past decade, family-planning policy and migration restrictions have been loosened, and in addition, the government has focused more on "family-friendly" policies such as child care provision and long-term care insurance to provide a more supportive environment for Chinese families.

In Mongolia, fertility rates have rebounded since 2005, possibly driven in part by financial benefits which enable larger family sizes. In post-industrialized East Asia, the transition to later childbearing and lower family sizes which accompanied population control policies has been followed by sustained ultra-low fertility and "family-friendly" policies. These policies focused on enabling people to reconcile work and family duties, such as child care and parental leave, but as yet have had little significant impact on fertility rates.

Although these societies are undoubtedly aging, we discussed the importance of reconsidering measurements of aging that take into account rising life expectancy, rather than arbitrary boundaries of age. The Prospective Old Age Dependency Ratios (POADRs) use a remaining life expectancy of 15 years, and when we use these ratios, we find that East Asian territories are aging less rapidly than traditional measures of aging (e.g., OADR) might indicate. Policies that focus on increasing labor force participation rates, improving educational outcomes, and human capital development throughout the life course, as well as providing adequate care and financial support systems in old age, will be crucial to Asia's population policies in the rest of the twenty-first century.

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## References

- Aird, J. S. (1982). Population studies and population policy in China. *Population and Development Review*, 8(2), 267–297.
- Akbari, A. H., & MacDonald, M. (2014). Immigration policy in Australia, Canada, New Zealand, and the

- United States: An overview of recent trends. *The International Migration Review*, 48(3), 801–822.
- Alkema, L., Kantorova, V., Menozzi, C., & Biddlecom, A. (2013). National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: A systematic and comprehensive analysis. *The Lancet*, 381(9878), 1642–1652.
- Anderson, T., & Kohler, H. P. (2013). Education fever and the East Asian fertility puzzle: A case study of low fertility in South Korea. *Asian Population Studies*, 9(2), 196–215.
- Atoh, M., Kandiah, V., & Ivanov, S. (2004). The second demographic transition in Asia? Comparative analysis of the low fertility situation in East and South-East Asian countries. *The Japanese Journal of Population*, 2(1), 42–75.
- Australian Government. (2009). *Fact Sheet 8 – Abolition of the “White Australia” Policy*; see [https://www.europarl.europa.eu/meetdocs/2009\\_2014/documents/danz/dv/0220\\_13\\_1/0220\\_13\\_1en.pdf](https://www.europarl.europa.eu/meetdocs/2009_2014/documents/danz/dv/0220_13_1/0220_13_1en.pdf)
- Bae, J. H. (2020). Determinants of the gap between desired and actual/expected number of children in Japan and South Korea. In S. Matsuda (Ed.), *Low fertility in Japan, South Korea, and Singapore: Population policies and their effectiveness* (pp. 15–38). Springer.
- Basten, S. (2015). Understanding ultra-low fertility in Hong Kong. In R. R. Rindfuss & M. K. Choe (Eds.), *Low and lower fertility* (pp. 63–86). Springer.
- Bedford, R. (2003). New Zealand: The politicization of immigration. *Migration Information Source Profile*; see <https://www.migrationpolicy.org/article/new-zealand-politicization-immigration/>
- Bedford, R., & Spoonley, P. (2014). Competing for talent: Diffusion of an innovation in New Zealand’s immigration policy. *The International Migration Review*, 48(3), 891–911.
- Bedford, R., Ho, E., & Lidgard, J. (2000). *International migration in New Zealand: Context, components and policy issues*. University of Waikato, Population Studies Centre.
- Boling, P. (2000). Family policy in Japan. In J. M. Mercier, S. B. Garasky, & M. C. Shelley II (Eds.), *Redefining family policy: Implications for the 21st century* (pp. 43–66). Iowa State University Press.
- Brinton, M. C., & Oh, E. (2019). Babies, work, or both? Highly educated women’s employment and fertility in East Asia. *The American Journal of Sociology*, 125(1), 105–140.
- Byambaa, E. (2018). Fertility preferences in Mongolia. In S. Gietel-Basten, J. Casterline, & M. K. Choe (Eds.), *Family demography in Asia: A comparative analysis of fertility preferences* (pp. 197–208). Edward Elgar Publishing Ltd..
- Callister, P., & Didham, R. (2007). Sub-replacement fertility: Is this an issue for New Zealand? *In Policy Quarterly*, 3(4), 4–11. <https://doi.org/10.26686/pq.v3i4.4238>
- Campbell, J. R. (2014). Climate-change migration in the Pacific. *The Contemporary Pacific*, 26(1), 1–28.
- CCCP. (1961). *Nine measures on reducing Urban population and compressing urban food sales*. CCCP. (In Chinese); see [http://guoqing.china.com.cn/2012-09/12/content\\_26747161.htm](http://guoqing.china.com.cn/2012-09/12/content_26747161.htm)
- CCCP. (1997). The Central Committee of the Communist Party of China approved and transmitted the party group of the National Family Planning Commission’s “report on family planning work”. In P. Peiyun (Ed.), *Encyclopedia of China family planning* (p. 26). China Population Press.
- CCCP & The State Council of PRC. (1962). *Instructions on seriously promoting family planning*. CCCP & The State Council of PRC. (In Chinese); see <http://cpc.people.com.cn/GB/64184/64186/66669/44>
- CCCP & The State Council of PRC. (1982). *Instructions on further improving family planning work* (Central Document Number 11). CCCP & The State Council of PRC. (In Chinese); see <https://archive.is/20140811173725/http://www.popinfo.gov.cn/dr/impdoc/coll/collnation/2001-12-25/0010375.html?openpath=spf/impdoc>
- CCCP & The State Council of PRC. (2013). *Opinions on Adjusting and Improving the Family Planning Policy*. CCCP & The State Council of PRC. (In Chinese); see [http://www.gov.cn/jrzq/2013-12/30/content\\_2557235.htm](http://www.gov.cn/jrzq/2013-12/30/content_2557235.htm)
- Chan, K. C. (1976). The role of the Family Planning Association in Hong Kong’s fertility decline. *Studies in Family Planning*, 7(10), 284–289.
- Chan, K. W. (2009). “The Chinese Hukou system at 50.” *Eurasian Geography and Economics* 50: 197–221; see <https://rsa.tandfonline.com/doi/abs/10.2747/1539-7216.50.2.197>
- Chan, K. W., & Buckingham, W. (2008). Is China abolishing the Hukou system? *The China Quarterly*, 195, 582–606.
- Chan, K. W., & Zhang, L. (1999). The Hukou system and rural-urban migration in China: Processes and changes. *The China Quarterly*, 160, 818–855.
- Chang, C.-F., Lee, C.-F., McKibben, S. L., Poston, D. L., & Walther, C. S. (2005). *Fertility, family planning and population policy in China*. Routledge.
- Chen, J., Davis, D. S., & Landry, P. F. (2017). Beyond Hukou Reform: Enhancing Human-Centered Urbanization in China. *Paulson Policy Memorandum*; see [https://paulsoninstitute.org.cn/wp-content/uploads/2017/02/PPM\\_Beyond-Hukou\\_Chen\\_Davis\\_Landry\\_English.pdf](https://paulsoninstitute.org.cn/wp-content/uploads/2017/02/PPM_Beyond-Hukou_Chen_Davis_Landry_English.pdf)
- Cheng, Y. H. A. (2020). Ultra-low fertility in East Asia: Confucianism and its discontents. *Vienna Yearbook of Population Research*, 18, 83–120.
- Cheng, T., & Selden, M. (1994). The Origins and Social Consequences of China’s Hukou System. *The China Quarterly*, 139, 644–668.
- Chin, M., Lee, J., Lee, S., Son, S., & Sung, M. (2012). Family policy in South Korea: Development, current

- status, and challenges. *Journal of Child and Family Studies*, 21(1), 53–64.
- Choi, Y. J., & Kim, J. W. (2010). Contrasting approaches to old-age income protection in Korea and Taiwan. *Ageing and Society*, 30(7), 1135–1152.
- Choon, C. N., Kitamura, Y., & Kc, A. T. (2008). The pension system in Japan and retirement needs of the Japanese elderly. *Ageing in Southeast and East Asia: Family, Social Protection, and Policy Challenges*, 172, 1.
- Cortés, P., & Pan, J. (2013). Outsourcing household production: Foreign domestic workers and native labor supply in Hong Kong. *Journal of Labor Economics*, 31(2), 327–371.
- Coxon, E., & Munce, K. (2008). The global education agenda and the delivery of aid to Pacific education. *Comparative Education*, 44(2), 147–165. <https://doi.org/10.1080/03050060802041050>
- Davis, K. (1967). *Population policy: Will current programs succeed?*; see [https://u.demog.berkeley.edu/~jrw/Biblio/Eprints/126grad/Davis/davis.1967\\_Science\\_pop.policy.pdf](https://u.demog.berkeley.edu/~jrw/Biblio/Eprints/126grad/Davis/davis.1967_Science_pop.policy.pdf)
- Department of National Planning and Monitoring of Papua New Guinea. (2015). *National population policy 2015–2014* (Vol. 1). *Policy Statement*; see <https://png-data.sprep.org/system/files/National%20Population%20Policy2015-2024.21stMay2015.pdf>
- Dockalova, B., Lau, K., Barclay, H., & Marshall, A. (2016). *Sustainable development goals and family planning 2020*. International Planned Parenthood Federation (IPPF).
- Dorling, D., & Gietel-Basten, S. (2017). *Why demography matters*. Polity.
- Ermisch, J., & Ogawa, N. (1994). Age at motherhood in Japan. *Journal of Population Economics*, 7(4), 393–420.
- Everington, K. (2019). Migrant worker Count in Taiwan Climbs to 706,000, Indonesians largest Group. *Taiwan News*.
- Family Planning 2020 Country Action: Opportunities, Challenges, and Priorities – Solomon Islands*. (n.d.); see [https://www.familyplanning2020.org/sites/default/files/Country\\_Action\\_Opportunities-Challenges-and-Priorities\\_SOLOMON\\_ISLANDS\\_V2C.pdf](https://www.familyplanning2020.org/sites/default/files/Country_Action_Opportunities-Challenges-and-Priorities_SOLOMON_ISLANDS_V2C.pdf). Accessed on 30 Dec 2020.
- Feng, J. Y., & Han, W. J. (2010). Maternity leave in Taiwan. *Family Relations*, 59(3), 297–312.
- Fiscal challenges and inclusive growth in ageing societies. (2019). *OECD Economic Policy Papers*. Organisation for Economic Co-Operation and Development (OECD). <https://doi.org/10.1787/c553d8d2-en>
- Fong, E., & Shibuya, K. (2020). Migration patterns in East and Southeast Asia: Causes and consequences. *Annual Review of Sociology*, 46, 511–531. <https://doi.org/10.1146/annurev-soc-121919-054644>
- Frejka, T., Jones, G. W., & Sardon, J. P. (2010). East Asian childbearing patterns and policy developments. *Population and Development Review*, 36(3), 579–606.
- Gietel-Basten, S. (2019). *The “Population Problem” in Pacific Asia*. Oxford University Press.
- Gietel-Basten, S., Han, X., & Cheng, Y. (2019). Assessing the impact of the “one-child policy” in China: A synthetic control approach. *PLoS One*, 14(11), e0220170. <https://doi.org/10.1371/journal.pone.0220170>
- Gillett, R. (2011). *Fisheries of the Pacific Islands: Regional and national information*. Food and Agricultural Organization (FAO).
- Glinskaya, E., & Feng, Z. (Eds.). (2018). *Options for aged care in China: Building an efficient and sustainable aged care system*. World Bank Group.
- Goodkind, D. (2011). Child underreporting, fertility, and sex ratio imbalance in China. *Demography*, 48(1), 291–316.
- Gounder, R. et al. (2019). Strengthening Fiji’s national poverty policies in the context of regionalism. *Openresearch*; see [https://openresearch-repository.anu.edu.au/bitstream/1885/157863/1/222\\_strengthening.pdf](https://openresearch-repository.anu.edu.au/bitstream/1885/157863/1/222_strengthening.pdf)
- Gray, M., Qu, L., & Weston, R. (2008). *Fertility and family policy in Australia*. Australian Institute of Family Studies Melbourne.
- Greenhalgh, S., & Winckler, E. A. (2005). *Governing China’s population: From Leninist to Neoliberal Biopolitics*. Stanford University Press.
- Gupta, S., Bernays, S., Black, K. I., Ramsay, P., Bolnga, J., & Kelly-Hanku, A. (2020). Community attitudes and gendered influences on decision making around contraceptive implant use in rural Papua New Guinea. *Reproductive Health*, 17. <https://doi.org/10.1186/s12978-020-00985-w>
- Haberkorn, G. (2008). Pacific islands’ population and development: Facts, fictions and follies. *New Zealand Population Review*, 33(34), 95–127.
- Harrington, R., Redman-MacLaren, M., Harvey, N., Puia, M., Carlisle, K., & Larkins, S. (2020). Barriers and enablers to using contraceptives for family planning at Atoifi Hospital, East Kwaio, Solomon Islands. *Pacific Journal of Reproductive Health*, 1(10), 586–597.
- Hawthorne, L. (2011). *Competing for skills: Migration policies and trends in New Zealand and Australia: Full report*. Department of Immigration and Citizenship & Department of Labour.
- Hayes, G., & Robertson, A. S. (2011). *Family Planning in the Pacific Islands: Current status and prospects for repositioning family planning on the development Agenda*. United Nations Population Fund, Pacific Sub-regional Office.
- He, A. J., Li, Z., & Huang, G. (2020). China: Social policy and reforms. In N. Ellison & T. Haux (Eds.), *Handbook on society and social policy* (pp. 238–251). Edward Elgar Publishing Ltd..
- Hugo, G. (2000). Declining fertility and policy intervention in Europe: Some lessons for Australia? *Journal of the Australian Population Association*, 17(2), 175–198.
- Hugo, G. (2006). Globalization and changes in Australian international migration. *Journal of Population Research*, 23(2), 107–134.
- Inoue, S. (2001). Population policies and programs in Japan. In A. Mason (Ed.), *East-West Center Occasional Papers* (Population and Health Series. No. 123) (pp. 23–37). East-West Center.

- International Organization for Migration. (2018). *Mongolia: Internal Migration Study*. IOM.
- Jones, G. (1997). *An Australian population policy*. Parliament of Australia; see [https://parlinfo.aph.gov.au/parlInfo/download/library/prspub/B8130/upload\\_binary/B8130.pdf;fileType=application/pdf#search=%221990s%201997%20publications%22](https://parlinfo.aph.gov.au/parlInfo/download/library/prspub/B8130/upload_binary/B8130.pdf;fileType=application/pdf#search=%221990s%201997%20publications%22).
- Kennedy, E., Gray, N., Azzopardi, P., & Creati, M. (2011). Adolescent fertility and family planning in East Asia and the Pacific: A review of DHS reports. *Reproductive Health*, 8. <https://doi.org/10.1186/1742-4755-8-11>
- Ku, A. S. (2004). Immigration policies, discourses, and the politics of local belonging in Hong Kong (1950–1980). *Modern China*, 30(3), 326–360.
- Kwon, T. W. (2001). The national family planning program and fertility transition in South Korea. *East-West Occasional Papers Population and Health Series*, 123, 39–64.
- Kwon, T. W. (2003). The transformation of Korean life: Demographic trends and their social implications. *Social Indicators Research*, 62/63(1–3), 19–38. <https://doi.org/10.1023/a:1022628730152>
- Labour Department. (2020). *A concise guide to the employment ordinance*. Government of the Hong Kong SAR of China; see <https://www.labour.gov.hk/eng/public/ConciseGuide.htm>.
- Lee, S., & Choi, H. (2015). Lowest-low fertility and policy responses in South Korea. In R. R. Rindfuss & M. K. Choe (Eds.), *Low and lower fertility: Variations across developed countries* (pp. 107–123). Springer.
- Lee, M., & Lin, Y. H. (2016). Transition from anti-natalist to Pro-natalist policies in Taiwan. In R. R. Rindfuss & M. K. Choe (Eds.), *Low fertility, institutions, and their policies: Variations across industrialized countries* (pp. 259–281). Springer.
- Lee, J. S., & Wang, S. W. (1996). Recruiting and managing of foreign workers in Taiwan. *Asian and Pacific Migration Journal*, 5(2–3), 281–301.
- Lee, M. L., Wang, H. Y., Chen, Y. H., Cheng, L. J., Lue, J. D., Peng, H. H., Cheng, C. H., Lin, Y. J., Lai, Y. J., & Liu, D. K. (2007). *Research report on social policy planning in response to lowest-low fertility in Taiwan*. Ministry of Interior.
- Liang, Z., & White, M. J. (1997). Market transition, government policies, and interprovincial migration in China: 1983–1988. *Economic Development and Cultural Change*, 45(2), 321–339.
- Lin, J. Y. (1988). The household responsibility system in China's agricultural reform: A theoretical and empirical study. *Economic Development and Cultural Change*, 36(S3), S199–S224.
- Liu, P. K. C. (2001). *Population policy and programs in Taiwan* (East-West Center Working Paper). East-West Center.
- Locke, J. T. (2009). Climate change-induced migration in the Pacific Region: Sudden crisis and long-term developments. *Geographical Journal*, 175(3), 171–180. <https://doi.org/10.1111/j.1475-4959.2008.00317.x>
- Lu, Y. L. (2002). Structure and change: The household registration system in China after 1949. *Peking University Journal*, 39(2), 123–130.
- Lu, J., & Liu, Q. (2019). Four decades of studies on population aging in China. *China Population and Development Studies*, 3(1), 24–36.
- Lucas, D., & Ware, H. (1981). Fertility and family planning in the South Pacific. *Studies in Family Planning*, 12(8/9), 303–315.
- Lutz, W., Goujon, A., KC, S., Stonawski, M., & Stilianakis, N. (2018). *Demographic and human capital scenarios for the 21st century: 2018 assessment for 201 countries*. Publications Office of the European Union.
- Mao, Z. (1961). *Selected works of Mao Zedong*. Foreign Languages Press.
- Matsuda, S. (2020). Characteristics and problems of the countermeasures against low fertility in Japan: Reasons that fertility is not increasing. In S. Matsuda (Ed.), *Low fertility in Japan, South Korea, and Singapore: Population policies and their effectiveness* (pp. 1–14). Springer.
- McDonald, P. (2015). The evolution of population and family policy in Australia. In R. R. Rindfuss & M. K. Choe (Eds.), *Low and lower fertility: Variations across developed countries* (pp. 143–159). Springer.
- McDonald, P., & Kippen, R. (1999). *Population futures for Australia: The policy alternatives* (Research Paper No. 5 1999–2000). Commonwealth of Australia; see <https://openresearch-repository.anu.edu.au/handle/1885/41933>
- McMurray, C. (1992). Issues in population planning: the case of Papua New Guinea. *Development Bulletin*, 24, 13–16.
- National Healthcare Security Administration & Ministry of Finance. (2020). *Guiding opinions from the National Healthcare Security Administration and the Ministry of Finance on pilot city expansion of the long-term care insurance*. National Healthcare Security Administration & Ministry of Finance. (In Chinese); see <http://www.nhsa.gov.cn/module/download/downloadfile.jsp?classid=0&filename=b9f5c190706640ef8b452b3cf959e5bc.pdf>
- Oakley, D. (1978). American-Japanese Interaction in the development of population policy in Japan, 1945–52. *Population and Development Review*, 4(4), 617–643.
- OECD. (2018a). Working better with age: Japan. In *Ageing and employment policies*. Organisation for Economic Co-operation and Development. <https://doi.org/10.1787/9789264201996-en>
- OECD. (2018b). Working better with age: Korea. In *Ageing and employment policies*. Organisation for Economic Co-operation and Development. <https://doi.org/10.1787/9789264208261-en>
- OECD. (2019). Pensions at a Glance 2019. In OECD (Ed.), *Pensions at a Glance*. Organisation for Economic Co-operation and Development; see <https://doi.org/10.1787/b6d3dfcf-en>
- OECD. (2020). *Education at a Glance 2019: OECD Indicators* (Education in Korea 2019). Organisation for Economic Co-operation and Development. <https://doi.org/10.1787/f8d7880d-en>
- OECD Family Policy Database. (n.d.). *OECD family policy database*. Organisation for Economic Co-operation and Development; see <http://www.oecd.org/els/family/database.htm>. Accessed on 1 Dec 2019.



- Peng, X. (1991). *Demographic transition in China: Fertility trends since the 1950s*. Oxford University Press.
- Rahm, L. (this volume). Chapter 33: Bioethics, sex selection, and gender equity. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Ramos, R. (n.d.). *Melanesia: Climate change, and food and water security*. Futuredirections.org.au; see <http://www.futuredirections.org.au/wp-content/uploads/2016/11/Melanesia-Climate-Change-Food-and-Water-Security-1.pdf>
- Raymo, J. M., Park, H., Xie, Y., & Yeung, W. J. J. (2015). Marriage and family in East Asia: Continuity and change. *Annual Review of Sociology*, 41, 471–492.
- Rhee, J. C., Done, N., & Anderson, G. F. (2015). Considering long-term care insurance for middle-income countries: Comparing South Korea with Japan and Germany. *Health Policy*, 119(10), 1319–1329.
- Ross, J. A. (1966). Recent events in population control. *Studies in Family Planning*, 1(9), 1–5.
- Rouzet, D., Caldera Sánchez, A., Renault, T., & Roehn, O. (2019). *Is age just a number? Meeting the economic challenges of a graying world*. OECD; see <https://oecdecoscope.blog/2019/09/11/is-age-just-a-number-meeting-the-economic-challenges-of-a-graying-world/?print=pdf>
- Sanderson, W., & Scherbov, S. (2008). Rethinking age and aging. *Population Bulletin*, 63(4).
- Sanderson, W. C., & Scherbov, S. (2010). Demography. Remeasuring aging. *Science*, 329(5997), 1287–1288.
- Scherbov, S., Sanderson, W. C., & Gietel-Basten, S. (2016). Better way to measure ageing in East Asia that takes life expectancy into account. *Australasian Journal on Ageing*, 35(2), 139–142.
- Schoening, S. (2020). Lessons from internal climate migration in Mongolia. *Forced Migration Review*, 64(64), 22–24.
- Shao, A. J. (2010). The public pension system in Taiwan: Equity issues within and between systems. *International Social Security Review*, 63(1), 21–36.
- Shi, S. J. (2010). The fragmentation of the old-age security system: The politics of pension reform in Taiwan. *Series on Contemporary China, Social Cohesion in Greater China*, 23, 339–371.
- Shin, E., & Do, Y. K. (2015). Basic old-age pension and financial wellbeing of older adults in South Korea. *Ageing and Society*, 35(5), 1055–1074.
- Siu, P. (2017, November 5). Hong Kong will need 600,000 domestic helpers in next 30 years amid demand for elderly care, labour chief says. *South China Morning Post*; see <https://www.scmp.com/news/hong-kong/community/article/2118462/hong-kong-will-need-600000-domestic-helpers-next-30-years>
- Sobotka, T., Matysiak, A., & Brzozowska, Z. (2019). *Policy responses to low fertility: How effective are they?* (Technical Branch Working Paper No. 1). United Nations Population Fund (UNFPA), Population & Development Branch.
- Spoorenberg, T. (2014). Fertility levels and trends in North Korea. *Population*, 69(3), 433–445.
- Spoorenberg, T., & Byambaa, E. (2009). Future low fertility prospects in Mongolia? An evaluation of the factors that support having a child. *Journal of Population Research*, 26(3), 227.
- Standard Employment Contract and Terms of Employment for Helpers. (2020). Hong Kong, HK: Hong Kong Immigration Department; see <https://www.immd.gov.hk/eng/forms/forms/fdhcontractterms.html>
- Standing Committee of the National People's Congress. (1958). *Regulations on household registration in the People's Republic of China*. Standing Committee of the National People's Congress. (In Chinese); see [http://www.npc.gov.cn/wxzl/gongbao/2000-12/10/content\\_5004332.htm](http://www.npc.gov.cn/wxzl/gongbao/2000-12/10/content_5004332.htm)
- Textor, C. (2020). *Number of migrant workers in China 2019*. Statista; see <https://www.statista.com/statistics/234578/share-of-migrant-workers-in-china-by-age/>
- The Nation Development and Reform Commission of PRC. (2019). *Key tasks of new urbanization in 2019*. The Nation Development and Reform Commission of PRC. (In Chinese); see <https://www.ndrc.gov.cn/xxgk/zcfb/tz/201904/W020190905514350734079.pdf>
- The State Council. (2019). *Guiding Opinions on Promoting the development of Care Services for Infants and Children under 3*. : The State Council. (In Chinese); see [http://www.gov.cn/zhengce/content/2019-05/09/content\\_5389983.htm](http://www.gov.cn/zhengce/content/2019-05/09/content_5389983.htm)
- The State Council of PRC. (1977). *Regulations of the Ministry of public security on Handling Hukou transfer*. The State Council of PRC. (In Chinese); see [http://www.lg.gov.cn/zwfw/zdfw/zjbl/hjsfl/zcfg/content/post\\_2750487.html](http://www.lg.gov.cn/zwfw/zdfw/zjbl/hjsfl/zcfg/content/post_2750487.html)
- The State Council of PRC. (1984). *Notice on the Issue of Farmers Entering Market Towns and Acquiring Hukou*. The State Council of PRC. (In Chinese); see [http://www.gov.cn/zhengce/content/2016-10/20/content\\_5122291.htm](http://www.gov.cn/zhengce/content/2016-10/20/content_5122291.htm)
- The State Council of PRC. (2014a). *National Plan on New-Type Urbanization (2014–2020)*. The State Council of PRC. (In Chinese); see [http://www.gov.cn/zhengce/2014-03/16/content\\_2640075.htm](http://www.gov.cn/zhengce/2014-03/16/content_2640075.htm)
- The State Council of PRC. (2014b). *Opinions on the strengthening reform of the household registration system*. The State Council of PRC. (In Chinese); see [http://www.gov.cn/zhengce/content/2014-07/30/content\\_8944.htm](http://www.gov.cn/zhengce/content/2014-07/30/content_8944.htm)
- The World Bank DataBank. (2020). Washington, DC: World Bank Group; see <https://data.worldbank.org/>
- Tsai, P. Y. (2012). The transformation of leave policies for work-family balance in Taiwan. *Asian Women*, 28(2), 27–54.
- Tsuya, N. O. (2015). Below-replacement fertility in Japan: Patterns, factors, and policy implications. In R. R. Rindfuss & M. K. Choe (Eds.), *Low and lower fertility* (pp. 87–106). Springer.

- UNFPA. (2014). *Population and development profiles: Pacific Island countries*. United Nations Population Fund, Pacific Sub-regional Office.
- United Nations. (2017). *World population prospects 2017*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2019). *World population prospects 2019*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations Committee for Development Policy. (2018). *Leaving no one behind* (Excerpt from Official Records of the Committee for Development Policy, Economic and Social Council, Supplement No. 13 (E/2018/33)). United Nations Committee for Development Policy; see [https://sustainabledevelopment.un.org/content/documents/2754713\\_July\\_PM\\_2\\_Leaving\\_no\\_one\\_behind\\_Summary\\_from\\_UN\\_Committee\\_for\\_Development\\_Policy.pdf#:~:text=One%C2%A0of%C2%A0,ilience](https://sustainabledevelopment.un.org/content/documents/2754713_July_PM_2_Leaving_no_one_behind_Summary_from_UN_Committee_for_Development_Policy.pdf#:~:text=One%C2%A0of%C2%A0,ilience)
- University of Hong Kong. (2016). *Consultancy study on the long-term development of child care services*. University of Hong Kong for Social Welfare Department.
- Urale, P. W. B., O'Brien, M. A., & Fouché, C. B. (2019). The relationship between ethnicity and fertility in New Zealand. *Kōtuitui: New Zealand Journal of Social Sciences Online*, 14(1), 80–94.
- Wang, C. (2012). History of the Chinese family planning program: 1970–2010. *Contraception*, 85(6), 563–569.
- Wang, H. H., & Tsay, S. F. (2012). Elderly and long-term care trends and policy in Taiwan: Challenges and opportunities for health care professionals. *The Kaohsiung Journal of Medical Sciences*, 28(9), 465–469.
- Wang, H., Abbas, K. M., Abbasifard, M., Abbasi-Kangevari, M., Abbastabar, H., Abd-Allah, F., Abdelalim, A., Abolhassani, H., Abreu, L. G., Abrigo, M. R. M., et al. (2020). Global age-sex-specific fertility, mortality, healthy life expectancy (HALE), and population estimates in 204 countries and territories, 1950–2019: A comprehensive demographic analysis for the Global Burden of Disease Study 2019. *The Lancet*, 396(10258), 1160–1203.
- Webber, M., & Barnett, J. (2010). *Accommodating migration to promote adaptation to climate change*. World Bank Group.
- Wesolowski, K., & Billingsley, S. (this volume). Chapter 17: Family policies: How do they differ around the World? In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- White, L. T. (1977). Deviance, modernization, rations, and household register in urban China. In A. A. Wilson, S. L. Greenblatt, & R. W. Wilson (Eds.), *Deviance and social control in Chinese society* (pp. 151–172). Praeger Publishers.
- Wong, S. (2007). *Exploring “unseen” social capital in community participation: Everyday lives of poor mainland Chinese migrants in Hong Kong*. Amsterdam University Press.
- Yang, W., Jingwei He, A., Fang, L., & Mossialos, E. (2016). Financing institutional long-term care for the elderly in China: A policy evaluation of new models. *Health Policy and Planning*, 31(10), 1391–1401.
- Yeh, M. J. (2020). Long-term care system in Taiwan: the 2017 major reform and its challenges. *Ageing & Society*, 40(6), 1334–1351.
- Zhao, Z., & Reimondos, A. (2012). The Demography of China's 1958–61 Famine. *Population*, 67(2), 281–308.
- Zhu, H., & Walker, A. (2018). Pension system reform in China: Who gets what pensions? *Social Policy and Administration*, 52(7), 1410–1424.

Elena Ambrosetti

## Introduction: European Demographic Challenges

Europe was a pioneer among the world's regions in the demographic transition. Indeed, in Europe this process has been characterized by a sharp decline in fertility and an extraordinary increase in life expectancy. In the late 1960s, Paul Demeny (1968) spoke of a new demographic equilibrium, with a high proportion of elderly and a small number of young people. However, in many European countries, such equilibrium has not been achieved: fertility has fallen below the replacement level (2.1 children per woman). In the last 40 years, some countries have witnessed the process called the *second demographic transition*, characterized by a fertility rate that is constantly below the replacement level (Lesthaeghe & van de Kaa, 1986). As a consequence, aging has accelerated, with the natural growth rate becoming close to zero or negative in some EU Member States. According to the latest projections issued by the UN, Europe will be the only region in the world to lose population by 2050. More specifically, Europe's population will decrease by 5%, while the European Union's<sup>1</sup>

population will decrease by 3%, or 16 million people, between 2019 and 2050.

Between the second half of the 1960s and 2000, total fertility rates plummeted in the EU Member States: from a peak above 2.5, the average number of children per woman dropped to below the replacement level of 2.1. However, this severe decline was not the same in each country,<sup>2</sup> neither in timing nor in size, and on average in the EU-28, the trend changed in 2000, when fertility rates began to rise (according to Eurostat). In the last two decades, the EU-28's total fertility rate was around 1.5 children per woman (with a low of 1.46 in 2001, rising slightly to 1.62 in 2010, then a slight decrease to 1.59 in 2017).

Life expectancy at birth, by contrast, rocketed upwards during the period 1960–2017 in all Member States, especially for women, even

namely: Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom.

<sup>2</sup> Inside the EU-28, there are relevant differences in the TFRs. Few EU-28 countries have a fertility just below replacement level: TFR in France was 1.90 live births per woman in 2017, followed by Sweden, with 1.78 live births per woman, and Ireland, with 1.77 live births per woman. Other EU-28 countries have TFRs much lower than replacement level: in 2017 Malta recorded the lowest EU-28 TFR with 1.26 live births per woman, followed by Spain (1.31 live births per woman), Italy and Cyprus (both 1.32 live births per woman), Greece (1.35), Portugal (1.38), and Luxembourg (1.39).

<sup>1</sup> In this chapter, we refer to the 28 countries belonging to the European Union before Brexit (January 1st, 2020),

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though the gender gap has decreased since 1980 in the Euro area<sup>3</sup> and since 1990 in the EU. The gain in life expectancy at birth differed across countries, but on average it is expected that in the EU over the period 2016–2070 it will rise from 78.3 to 86.1 years for males, and from 83.7 to 90.3 years for females; then, the gender gap in life expectancy at birth is projected to decrease in the next decades (according to Eurostat, 2017).

Because of the concomitant low fertility and high life expectancy, the age structure of the EU population is much older than in the past. As a further consequence, in many EU Member States the working age population is shrinking while there is an expansion of the retired population. Population aging, measured by the share of older persons in the total population, will thus increase significantly in the coming decades as the baby-boom generation enters retirement. The consequences in terms of social expenditures for seniors, and the burden that the working age population will have to carry, are one of the major challenges that EU countries are going to face in the near future. This process is happening much faster in some EU Member States than others. In 2018, Italy (22.6%) and Greece (21.8%) had the highest shares in the EU of persons aged 65 or more in the total population, while Ireland had the lowest share (13.8%).

To compensate for the slowing, or even negative, rate of natural increase in many countries, much of Europe has been depending on net migration to sustain population growth. As early as 2000, the United Nations published the report “*Replacement Migration: A solution for declining and aging populations?*” highlighting the need for Western countries to use, among other solutions, international migration to cope with an aging population. Several empirical studies have been carried out since then, showing the importance of immigration as one of the channels through

which it could be possible to decelerate (not to defeat) population aging (e.g., Haug et al., 2002; Gesano & Strozza, 2011; Ambrosetti & Giudici, 2013; Billari & Dalla-Zuanna, 2013; Demeny, 2003).

Yet, migration is a controversial issue in Europe: some demographers have formulated the controversial hypothesis that a *third demographic transition*, characterized by a change in the composition of the population in terms of ethnic origin, may occur. As a consequence, the original population will become a minority (Coleman, 2006). This argument is accompanied by the alarmist view of world population growth as a *ticking time bomb*: the extreme consequence of the demographic imbalances between Europe and Africa – consistent with the third demographic transition theory – is an invasion of Europe by the youth of the Southern part of the world (Collier, 2013). However, the assumption that migrants move from Southern to Northern countries of the world is wrong. Indeed, 60% of international migration takes place between countries with the same level of development either in the Southern or in the Northern hemisphere (Ambrosetti & Paparusso, 2012).

As a consequence of these alarmist views, nowadays migration in Europe is perceived as a problem instead of being an opportunity. Thus, the political debate in the European countries is focused on how to solve the migration problem, i.e., how to prevent migrants from entering through tighter border controls. After EU expansion, there was a considerable flow of migrants from Eastern European countries to those in the West. This was followed by labor migration from non-EU countries, such as Albania, Serbia, Russia, and Ukraine. These migrants were added to the foreign populations that had previously settled in European countries from former colonies (e.g., South Asia and the Middle East in Great Britain; North Africa and the Middle East in France; Indonesia in the Netherlands) or for construction work (e.g., from Turkey in Germany). Anxiety about immigration and the securitization of borders was then exacerbated by an exceptional increase of the number of asylum seekers in Europe (Van Bavel, 2020)

<sup>3</sup> The Euro area includes the 19 countries of the European Union which have adopted the Euro as their common currency. More specifically, EU member countries in the Euro area are: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

following the Arab Revolts of 2010–2011, as people fled from the violence in Syria, Libya, Iraq, and Afghanistan. From 2012, the number of asylum applications rose rapidly, with 431 thousand applications in 2013, 627 thousand in 2014, around 1.3 million in both 2015 and 2016, then 712 thousand in 2017, and 638 thousand in 2018 (considering only first-time applications from outside the EU). Asylum seekers came first of all from Syria, and then also from Afghanistan, Iraq, Pakistan, and Iran.

This chapter is structured as follows: we will present the main policies adopted in European countries during recent decades to cope with: (1) low fertility, (2) population aging, and (3) historically high rates of migration, in order to preserve social cohesion and protect the well-being of their citizens.

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## Population Policies in Europe: An Overview

### Policies Addressing Family and Fertility

Half of the world's population has fertility below replacement level. Europe, in particular Southern, South-Eastern, and Eastern Europe have very low fertility levels, i.e., falling below 1.5 births per woman. This is one of the unexpected consequences of the demographic transition that makes policymakers and government worried about its potential consequences (population aging, stalling economic growth, declining labor force, need to implement rapid reforms in the labor market, pension and healthcare systems, etc.). The decrease in fertility rates across Europe is due to both components that constitute human fertility: *tempo*, i.e., the timing of childbearing and *quantum*, i.e., the total number of children. The *tempo* component can be summarized by the postponement of childbearing due to the rising mean age at first birth since the 1970 in the European countries (Balbo et al., 2013). The *quantum* is directly related to the total number of children, that as mentioned above, has declined below replacement level during the last decade of

the twentieth century in Europe (Kohler et al., 2002).

Low fertility has several driving factors than can be summarized in micro-level, meso-level, and macro-level determinants (Balbo et al., 2013). There is an extensive literature that has explained the social, cultural, and economic determinants behind the decline of fertility below the replacement level at the end of demographic transition (Wilkins, 2019). Contrary to what was first stated in the Second Demographic Transition theory, fertility has decreased much more in those countries where changes in the ideal family, familial, and gender roles were *less* effective both in public and in the private sphere. Thus, among the determinants explaining low fertility levels, we need to consider not just changing ideals regarding family size and gender roles, but actual constraints that couples and more specifically women face in realizing their fertility ideals (Chesnais, 1996). One of the main constraints is the economic uncertainty linked to the labor market structure and the economic cost of housing and children, in particular for young people (Comolli, 2017; Sobotka et al., 2019; Matysiak et al., 2021). Economics factors are accompanied by other social and cultural factors: in many contexts, women face difficulties in combining work outside the home and childbearing, for reasons linked to gender inequality both inside and outside the household, i.e., the gendered division of labor. Most of the time, in countries around Europe, such a combination is almost impossible because of traditional attitudes towards maternity and women fostered by the institutional settings embracing the male breadwinner model (McDonald, 2000).

Other factors have also been cited to explain the decrease of fertility below replacement level: the educational expansion that led women to postpone childbearing, and the emergence of new partnership dynamics that led to family instability due to higher occurrence of divorce and re-partnering (Balbo et al., 2013). A third factor to consider is the spread of *intensive parenting*, meaning that parents are expected to make greater investments in their children both in terms of time and of costs in order to contribute to their emotional and

cognitive development (Sobotka et al., 2019). Lastly, it is worthwhile to mention the political upheavals that have occurred cyclically in several European contexts, especially in Central and Eastern Europe, contributing to delaying couple formation and childbearing (Sobotka et al., 2019).

Family policies are policies aimed at improving the well-being of families, in particular families with children. In some contexts, such policies are designed to ensure benefits and compensation for those with greater family burdens and those who are socially disadvantaged. Family policies may have different objectives: e.g., providing aid to family formation by targeting support to prenatal care, parental leave, and pre-school childcare; or providing support to families by cash or in-kind remuneration, often linked to the number of children; or providing support for future generations of adults through programs such as tax breaks for child expenses and savings plans. The goal of such programs is to reduce the gap between ideal and real fertility. In theory, these policies should aim to eliminate or reduce the main social, cultural, and biological barriers to fertility (Thévenon, 2015). As a matter of fact, women in countries with very low fertility continue to express a preference for two children families (Sobotka & Beaujouan, 2014).

Pronatalist policies, i.e., policies designed to raise fertility, have become widespread globally since at least 30 years ago among countries with fertility under replacement level. Historically, many European governments<sup>4</sup> had started to implement policies to support families since the beginning of the twentieth century (Gauthier,

1996; Daly & Ferragina, 2018). At that time, family policies consisted in large part of financial transfers to the family. The first example is France, which more than a century ago, in 1913, introduced the first paid maternity leave. Then, in 1919 France implemented a Family Quotient System to stimulate fertility according to which those without children should pay extra taxes while those with many children had tax reductions (May, 2015; Sobotka et al., 2019). Family policies, however, took several decades to become a well-organized component of modern welfare states. By the mid-1950s, cash transfers to families with children had become largely widespread among the more developed countries (Daly & Ferragina, 2018). In the same period, European countries started to provide such family allowances aimed to support the traditional male-breadwinner female-homemaker division of labor (Van Winkle, 2020).

As a consequence of the steep decline of fertility in the last 45 years, we have observed a clear change in the position of European Governments toward family policies, with policies designed to raise fertility becoming ever more widely adopted: in the European continent, 29 countries in 2015 reported having policies that aimed to raise fertility, compared to only seven in 1976 (according to the UN World Population Policy Database, 2015).

### Policies by Models

There is a vast literature on family policies in the more developed countries: a large share of the studies realized over the last 30 years have been comparative between different countries, trying to explain differences in the policy instruments used in different contexts or to different welfare state regimes. According to the latter research strand, inspired by Esping-Andersen's (1990, 1999) typology of welfare state regimes, countries are grouped into three regimes or welfare-state models: the social-democratic (or Scandinavian or Nordic), the conservative (or Continental), and the liberal (or Anglo-Saxon). Ferrera (1996) has expanded this typology adding a "Southern Model" of welfare in southern Europe, identifying distinctive characteristics of the

<sup>4</sup> Article 159 of the Treaty on the Functioning of the European Union (TFEU) states that "*the Commission shall draw up a report each year on progress in achieving the objectives of Article 151 [social policy], including the demographic situation in the Union*", giving an auxiliary role to the EU in addressing demographic challenges. Social policies in the EU Member States are designed and implemented both by central governments and specific ministries. They fall within the European Pillar of Social Rights (the Social Pillar) introduced in 2017 to support fair and well-functioning labor markets and welfare systems in the EU, leaving to Member States the right to define the fundamental principles of their social security systems and manage their public finances.

welfare states of Italy, Spain, Portugal, and Greece. Family policies scholars have used these models to divide countries into different categories according to the support provided in cash for families and for working parents. As family policies are embedded in the different welfare-state regimes, they evolved together with those regimes, absorbing their distinct characteristics.

Countries included within the social-democratic model, e.g., the Scandinavian countries, provide universal welfare state support for families, strong support for working parents, and exhibit a high commitment to gender equality. Conservative countries such as Germany, France, and Russia tend to focus on support for children, with generous parental leave, support for pre-school, and more generous cash payments based on the number of children, but these policies aim to sustain mainly traditional two-parent families (Gauthier, 2002). Countries belonging to the liberal model, such as the United Kingdom and Switzerland, use more modest and need-based state intervention for families, targeting specifically poor families with higher interventions. Countries falling within the Southern model, by contrast, are characterized by strong attention toward old-age pensions at the expense of unemployment, sick benefits, and family allowances measures. To compensate for this emphasis on older adults, Southern model countries are characterized by the large presence and the strong role of the family acting as a “social clearinghouse” (Ferrera, 1996: 21). The system is largely inspired by the male-breadwinner family/kinship solidarity model where the gender division of labor is asymmetrical and women should provide the assistance and care that are essential for the welfare of the extended family (Naldini, 2003).

### **Policies by Family Policy Dimensions**

A second categorization of family policies is based on specific family policy dimensions: i.e., groups of policies that have similar goals such as parental leave to increase female labor force participation and family benefits to reduce the cost of children to parents (Van Winkle, 2020).

According to Baldwin (1996), Thévenon (2011), and Van Winkle (2020), classifying policies by dimensions has several advantages compared to the classification by welfare regimes. For instance, it allows a more nuanced understanding of how policies develop within countries over time. Policies are not static, they are dynamic over time; therefore, countries belonging to a certain welfare regime may change policies over time, shifting to another regime. Indeed, as stressed by Daly and Ferragina (2018), the regime types approach has lost momentum because the process of liberalization has been driving welfare states to reform toward similar patterns, thus diminishing some of the main peculiarities that made the welfare regime models so powerful in the past.

Daly and Ferragina (2018) identify over the years a stratification of policies, as countries have changed their approach over time and varied their mix of policy instruments. They distinguish between a *foundational* and *consolidation phase* of policies. The main policy instruments adopted during the *foundational phase* were almost universal cash allowances for children and maternity leave. According to the authors, this phase started after WWII and lasted till the end of the 1970s. During this first phase, in almost all the countries analyzed there was an increase in the cash allowance for children and a general effort to extend the generosity of maternity leave both in terms of duration and average wage replacement level. Those policy instruments were strongly aimed at maintaining the solidarity of families and protecting the health of the mother and of the child. After the foundational period, where the basis of modern family policies was laid, countries concentrated their efforts on expanding their family policy packages. This expansion opened a new phase of family policies, defined by the authors as the *consolidation phase* starting in the 1980s. Since then, family policy packages have become much more diversified in terms of policy instruments; at the same time, an increase in public expenditure on family policies has occurred.

This later period is characterized by a shift from financial aid toward the tax system being

used to partially replace income support, by the introduction and/or consolidation of new policy instruments such as maternal and paternal leave, and by growing funding devoted to early childhood education and care (ECEC). Policies developed during the consolidation period are designed to support families as economic institutions, but also to address intra-familial equity and to support women's participation in the labor market. The authors argue that over time there has been both continuity and change of family policies, because the measures that characterized the foundational phase are still in place even as a variety of additional policies have been adopted. Therefore, the idea of policy stratification is highly appropriate to describe the evolution of family policies over time.

Daly and Ferragina (2018) provide an overview of trends in family policies in 23 OECD countries in the long run, starting from the 1960s, by analyzing the evolution of three policy domains: child-income support to families, family-related leave, and early childhood education and care (ECEC). Each domain is analyzed by several indicators and measures, looking at their evolution over time.

Child-income support to families has been available since the 1960s in the countries analyzed; at that time, it was mostly provided through child-supplements for working fathers. Later on, between the 1960s and the 1980s, there was a shift toward a universal child-benefit not limited to working fathers. Some countries such as Austria, Belgium, and Italy were generous during the whole period, while other countries such as Germany, Ireland, and the United Kingdom increased their support over the years. The clear long-term trends found by the authors are that all the countries have increased their support for families over the years, and the support has shifted toward tax credits.

Family-related leave was initially provided through maternity leave: over the years, there has been an increase in the number of weeks of leave and in the weeks remunerated for all countries that lasted till the 1980s. From the 1980s to the 2010s, support for maternal leave gained momentum with a constant increase in the

number of weeks of leave and weeks of paid leave, though with strong differences among countries. Paternity leave has evolved much more slowly. In some countries in 2015, there was no paternity leave (Austria, Germany, Ireland), while other countries (Belgium, Luxembourg, Norway, Spain, and Sweden) have been the forerunners and have witnessed a spectacular increase in the weeks of leave exclusively for use of the father.

Early childhood education and care (ECEC), measured through spending (for children under five) and enrollment rates (for children under three), has increased for both indicators. Spending was particularly strong already in the 1980s in the Nordic countries, while in the other countries the increase has been slower and concentrated in the last two decades. Enrollment rates had a slow increase till the end of the 1990s, then it increased at a much higher level during the last two decades.

To summarize, we have analyzed (see Fig. 14.1) the trend over time in the three family policy domains as a percent of the GDP for the 26 European countries that are members of OECD. Data are available in the OECD Social Expenditure Database starting from 1980. We have calculated mean values per policy domain for the countries analyzed: in the period analyzed (1980–2015), there is a general trend of expansion of both childcare and leaves, while family allowances have slightly declined. These trends confirm the thesis of a consolidation phase of family policies in all the European countries, which are nowadays much more diversified than in the past, but have converged on the goals of favoring working mothers and fostering early childhood enrollment in education.

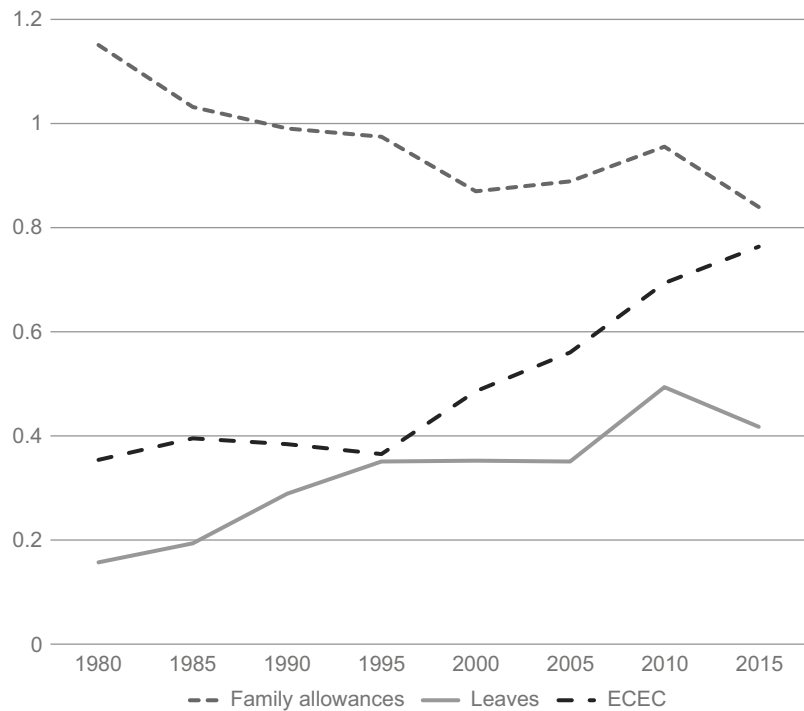
Consistent with these findings, Luci-Greulich and Thévenon (2013) stressed a general increase across OECD countries in spending for families with children over the last three decades, with the aim being to support conciliation between work and family life and to promote families' well-being. However, there are still differences across countries in the form and extent of support provided to families with children under 3 years: while Nordic countries are providing full support



**Fig. 14.1** Family policy spending as percentage of GDP in European countries by type, 1980–2015

Source: Social Expenditure Database (OECD, 1980–2018)

Note: This Figure includes only European countries that are OECD members: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and United Kingdom



to working parents, in the Anglo-Saxon countries the financial support is great but the in-kind support is less, and finally in countries in Continental and Eastern Europe there is much more heterogeneity with the exception of France and Hungary, both providing larger support to working parents, compared to other countries of the same geographical area.

### Have Family Policies Been Effective?

Has the expansion of policy measures led to an increase in fertility? Or more generally speaking, are family policies effective in reaching their goals? There is a rich literature on that issue: in the last 25 years, several studies have tried to measure the effectiveness of pronatalist policies in raising fertility in European countries. Bonifazi and Paparusso (2019) provide an interesting categorization of the available literature distinguishing the studies by the type of data used (macro and micro) and by the typology of policy intervention (conciliation policies and gender equality policies). According to their analysis, in the literature about the effects of monetary transfers on fertility using macro-data, there is a general agreement of a

positive impact on policies in fertility. However, the impact is often quite small. Interestingly, those empirical analyses have also showed that the effect of family policies may be more important for the calendar of childbearing (i.e., a *tempo* effect, policy interventions generally reducing the mean age at childbearing) than for the total number of children (i.e., a *quantum* effect). Finally, the effect of policies depends on the instrument used to implement them: Luci-Greulich and Thévenon (2013), in analyzing the effect of five policy instruments<sup>5</sup> on fertility in OECD countries, found that each instrument had a positive effect on the TFR, therefore their combination in the first years of children's lives could influence parents' decision to have children. However, not all measures have the same weight. Monetary transfers after the first year of birth and the provision of services for children under 3 years of age

<sup>5</sup> (1) Spending per birth, (2) spending on cash benefit for children under 3 years, (3) spending on childcare for children under 3 years, (4) number of paid leave weeks, (5) childcare enrollment of children under 3 years.

have a greater effect on fertility than parental leave and baby bonuses.

As far micro-studies are concerned, Bonifazi and Paparusso (2019) highlight that the results are generally more complex than the previous ones and do not always show a positive relationship (e.g., Vignoli et al., 2012). These results point out the fundamental role played by contextual and individual socio-demographic factors in the relationship between monetary transfers and fertility.

While analyzing research that has addressed policy instruments, Bonifazi and Paparusso (2019) point out that policies addressing work-life balance (also called “reconciliation policies,” as they aim to reconcile work and childbearing) are widely discussed in the literature, but show a positive but limited impact on fertility in some studies while showing an absence of effects in others. There is also a large heterogeneity in the results depending on the geographical context of the study, on the recipients of policies (women, men, or both), and finally in the typology of the policy intervention (e.g., duration of parental leave, availability of childcare for children under 3 years, availability of part time jobs, etc.). Labor market policies and conditions have a strong impact on reconciliation policies: more precisely, the availability and stability of jobs are preconditions for young adults to accumulate resources to fund their own family. Particularly, fertility is lower in contexts where unemployment rates are high and where there is high job instability (Comolli, 2017). The possibility of working part-time is another important factor to foster reconciliation between family and work-life. However, the effect of part-time work on fertility is largely dependent of the type and quality of the work: while the effect is positive for highly educated women, the effect could be neutral in contexts where a part-time job means a more precarious job (Sobotka et al., 2019).

Policies fostering gender equality should have a positive effect on couples’ intentions and fertility behavior (McDonald, 2013). In such a context, men play an increasingly active role at home, allowing women to more easily reconcile paid work and family work. Bonifazi and Paparusso (2019) analyze studies evaluating the impact of

gender egalitarian policies on fertility using time-use surveys in order to investigate the time that both men and women spend in household tasks. The evidence emerging from those studies is that women who perform a large share of domestic work (more than 75% of the time) have lower fertility intentions than women who do not perform the same amount of domestic work. Additionally, a greater involvement of fathers in childcare increases the likelihood of giving birth to a second child.

To conclude, two findings should be highlighted. First, family policies have a short-term impact, especially a *tempo* effect of fertility; as a consequence, the effect of family policies is more relevant when considering short-term period fertility, instead of long-term cohort fertility, for which the evidence is more mixed (Sobotka et al., 2019). Second, while the impact of policies on fertility is limited, nevertheless they contribute to improve the overall living conditions of families, and they may have the indirect effect of increasing the working population by stimulating women’s labor force participation, thus reducing indirectly the burden of decreasing fertility and increasing population aging on welfare states (Thévenon, 2015).

## Policies Addressing Population Aging

At the moment of writing this chapter, we are facing a global health crisis due to a pandemic of the coronavirus disease (COVID-19). The actual crisis is the greatest health and socioeconomic challenge that Europe and the rest of the world have faced since World War II. The European countries, having been hard hit by the pandemic, have suddenly rediscovered the potential implications of an aging population: the implications go beyond the challenges to the pension and health-care systems, as the social and economic consequences of this crisis are already having an impact on labor markets, on the elderly, on families, and on the most vulnerable such as migrant workers and atypical workers.

The phenomenon of population aging is a consequence of positive developments in health and

socioeconomic progress that have increased life expectancy and decreased fertility. Population aging brings a series of societal challenges for the future, which need to be tackled by policymakers through synergetic, systematic strategies. One of the major challenges is the sustainability of pension systems, threatened by the contemporaneous increase in the number of retirees and the decline in the size of the working-age population. An additional challenge posed by population aging is the shrinkage of the labor force, which may affect the sustainability of both economic growth and social assistance.

### **Pensions Reforms**

In order to face such challenges, many European governments have adopted measures devoted to increasing the employment rates of older workers, such as raising the retirement age by adjusting the retirement age to changes in life expectancy, and by reducing options of early retirement; some countries have also revised benefit levels and coverage.

Indeed, the EU Member States have implemented pension reforms since the middle of the 1990s in order to assure sustainability of public expenditures in view of an expected increase in the proportion of the population aged 65 and over. Several modifications have been introduced in the rules and in the parameters of the national pension systems (Carone et al., 2016). The automatic adjustment for demographic changes is among the most important novelties introduced by the reforms: the new mechanisms will guarantee that key pension parameters such as retirement age, benefits, and methods of financing will be modified according to future changes in key demographic parameters such as life expectancy at birth and dependency ratio. According to the projections in the 2018 Ageing Report of the EU (European Commission, 2018), public pension expenditure as a percentage of GDP is projected to increase only by 0.8 percentage points between 2016 and 2040 then to return to 2016-levels in 2070. Therefore, the reforms implemented in the pension systems during the last decades will have the expected effect of containment of the public expenditure in the

long run. To be sure, there are considerable variations among countries; some EU countries will see their public pension expenditures rise by more than 2% of GDP to 2040 (including Germany, Belgium, Czech Republic, and Norway), while others will see it fall by an equal or greater amount (Greece, Croatia, Latvia, France, and Portugal). Nevertheless, the new adjustment mechanisms will be powerful stabilizers of public pension spending.

However, there are still several issues that need to be addressed in order to guarantee inter-generational equity and fairness. Indeed, the reforms in place will take time to be effective, and in the next 20 years many old people across Europe will see an increase in their retirement age and a decrease in the generosity of the pension that they will get (Carone et al., 2016). That will pose an issue of equity compared to generations that retired in the past at a younger age and with more generous pensions, and to generations still in the labor market, because due to the reform, pensions will start to increase more slowly than wages.

The introduction of public pensions in the 1930s strongly contributed to the reduction of old age poverty. In 2010 in the OECD countries, the poverty rate for those aged 65 and over was close to the rate for the overall population. The reforms adopted in the pension systems across Europe may have stabilized public pension spending, but they may also bring an increase in the poverty rate of older people, as several studies recently published have highlighted (Anderson, 2015).

### **Healthcare**

The current COVID-19 pandemic has highlighted not only the frailty of the elderly and the oldest old population, but also the weakness of health systems in some European countries. After a slow down and in some countries a decrease in public expenditures for healthcare in the European countries during the 1980s and the 1990s, health spending rose again in the late 1990s and during the first decade of the twentieth century. However, after 2009, the financial tightening that followed the crisis of 2008 has brought a reversal

in trend or slower growth in some countries (European Commission, 2018). In an aging society, there is a rising need for providing care for older people, both in terms of regular healthcare and then long-term care for an increasing number of elderly people who are frail or affected by dementia. Indeed, the rise in life expectancy has been accompanied by a growing number of people with an increased number of years spent with chronic disease and limitations in their ability to perform daily activities, and only a limited increase in years of healthy life expectancy. As a consequence, the sustainability of public funding for the health and long-term care systems is another major challenge posed to European societies by population aging, because the increase in life-years in which seniors need expensive care may raise the demand for services over a longer period, if the health status of the elderly population does not improve.

### Active Aging

Beyond the economic and the health spheres, other societal spheres, such as the family and the community, are crucial in a society that needs to adapt to an increase in the number of older people. In this context, it is central to introduce the concept of active aging. It arises from the idea that older people can represent a resource for the society in terms of their political, social, economic, and cultural contributions; indeed, their autonomy and their participation in the labor market and in society should be encouraged. The socio-demographic dynamics that Europe is facing have led institutions and policymakers to take into account that the elderly can be considered as a set of different resources for the whole society, and that their potential in terms of working, spending, and their social and cultural contributions have to be enhanced.

Active aging as a concept dates back to socio-gerontologist discourse of the 1940s and 1950s, which stressed the importance of maintaining an active lifestyle during old age (Boudiny, 2013). At the very beginning the concept of active aging put particular emphasis on participation in the labor market. However, during the 1990s, a new concept of active aging emerged that stressed the

link between activity and health, thanks to the World Health Organization (WHO) (Walker, 2008). The expression “active aging” refers to the process of optimizing opportunities for health, participation, and autonomy in order to enhance quality of life as people age.

Over the years, the definition of active aging shifted from a unidimensional approach to a multidimensional one, the latter encompassing several domains of life. The multidimensional approach takes into account different phases of the old age (e.g., pre-retirement, independent living during retirement, dependent living, etc.) and the interconnection between the different domains of life (Boudiny, 2013).

In Europe, the evolution of active aging over the last 20 years has complied with the two different visions mentioned above: the economic model, focusing on the importance of employment and labor market participation of the elderly apart from the pension age, and the more comprehensive model that has been fostered by the WHO, the UN (United Nations), and some parts of the EC (European Commission) (Walker & Maltby, 2012).

The discourse on active aging in Europe culminated in the proclamation of the European Year 2012, i.e., the “European Year for Active Aging and Solidarity between Generations” in order to promote the contribution that older people make to society. The proclamation was intended to afford opportunities to foster solidarity, cooperation, and understanding between generations and to get younger and older people to work together (Decision No 940/2011/EU of the European Parliament and of the Council).<sup>6</sup> In addition, the European Commission’s Directorate General for Employment, Social Affairs and Inclusion (DG EMPL) and the United Nations Economic Commission for Europe (UNECE) have launched the Active Aging Index (AAI), a statistical tool aimed to monitor active aging results at different levels, in order to expand the potential of the elderly people and encourage their autonomy and participation in the society.

<sup>6</sup> See <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011D0940>, accessed on July 25, 2020.

The implementation of a comprehensive active aging policy agenda aims to promote better quality of life and the wellbeing of individuals of all ages, as it aims to go beyond the promotion of paid work and to include unpaid and non-marketed activities in which older people are engaged (Zaidi et al., 2017).

The AAI includes 22 indicators, grouped into four domains and it covers two dimensions of active aging: (1) *Actual experiences of active aging*, which embraces three domains, i.e., “Employment”, “Participation in Society”, and “Independent, Healthy and Secure Living”; and (2) *Capability to actively age*, which contains the domain “Capacity and Enabling Environment for active aging” and can be read as a foundation of the other three domains.

All the indicators of the AAI calculated in the four domains are subdivided by gender in order to obtain gender-specific indices in addition to the domain-specific ones. Since the launch of the AAI, several researchers have calculated it at different territorial levels. In this context, the Active Aging Index might be seen as a first step to evaluate the overall results of the aging process in Europe in terms of unexploited working and social potential, as well as to identify the “prodigiously” successful regions that can play the role of *example* for the rest of the country. As noted by Karpinska and Dykstra (2015), active aging’s aspects can be disentangled in order to be investigated and targeted at the regional level, bearing in mind that actions at the regional level depend both on legal and economic autonomy, and this relationship varies by country. Several European countries have integrated AAI in their policies, as for instance Malta, the Czech Republic, and Poland (UNECE/EC, 2019).

The AAI for the year 2018 at the country level for EU28 countries is presented in Table 14.1; countries may be clustered (see Table 14.2) in four main groups according to their scores in the four domains (UNECE/EC, 2019). The clustering helps us to read the results easily. The first cluster is formed by countries of Eastern Europe and the Mediterranean: Bulgaria, Croatia, Greece, Hungary, Italy, Poland, Romania, Slovakia, Slovenia, and Spain; countries belonging to this

cluster are characterized by very low social participation in comparison with countries belonging to other clusters, they have also lower participation to the labor market compared to the other EU countries, while they outperform in the domains of independent living and capacity and enabling environment. The second cluster comprises countries from Western-Continental Europe and from the Mediterranean islands: Austria, Belgium, Cyprus, France, Luxembourg, and Malta; the major challenge that these countries are confronting is the low employment rate for the older age groups.

Countries belonging to the third cluster are located in different regional areas in Europe: Czech Republic, Estonia, Ireland, Germany, Latvia, Lithuania, and Portugal; these countries have lower scores in all the domains, but higher employment compared to the countries in the other clusters. Lastly countries in the fourth cluster are located in the Northern part of Europe: Denmark, Finland, Netherlands, Sweden, and the United Kingdom. They outperform in all the domains.

Understanding in what domain(s) one country or one cluster of countries lags behind the others is important to addressing policy in those particular domain(s). However, even countries that are above the EU average can still improve their situation; their good score means that they are on a good path for active aging, with further improvement beneficial to the whole society (UNECE/EC, 2019). Active aging differs also by gender: the AAI Report highlights that on average, in the EU28 women are doing worse than men in almost all domains: the largest gender gap is in the employment domain, while social participation is the only domain where women outperform men. However, average scores hide differences between countries and within domains regarding the gender gap. It is worth noticing that in three countries – Estonia, Finland, and France – the difference in the overall score of AAI between men and women is positive for women.

The analysis of the AAI in the EU28 over time provides an overview of the progress made across Europe to foster active aging: on average between

**Table 14.1** Active Aging Index in the EU 28 (overall index and domain specific indexes<sup>a</sup>)

Country	Domain-specific scores				Overall score
	Employment	Social Participation	Independent, healthy & secure living	Capacity and enabling environment	
Belgium	23.8	27.0	73.3	62.8	37.7
Bulgaria	30.5	9.7	66.2	55.9	31.8
Czech Republic	34.2	16.2	71.4	58.7	36.5
Denmark	40.6	21.7	78.4	66.5	43.0
Germany	39.4	15.9	74.9	63.6	39.6
Estonia	44.5	14.3	66.5	53.2	37.9
Ireland	35.4	18.8	75.0	63.2	39.1
Greece	20.6	11.8	63.9	50.0	27.7
Spain	25.7	16.2	71.6	59.7	33.7
France	26.9	26.2	75.4	62.2	38.6
Croatia	21.2	15.8	64.2	49.4	29.3
Italy	28.0	17.3	68.0	55.9	33.8
Cyprus	30.8	19.4	71.5	54.9	35.7
Latvia	37.9	17.8	57.7	50.2	35.3
Lithuania	37.9	11.1	65.3	48.5	33.4
Luxembourg	20.2	23.8	74.2	62.2	35.2
Hungary	27.5	11.6	65.6	51.0	30.5
Malta	25.6	20.9	70.6	60.5	35.4
Netherlands	36.3	26.6	77.3	64.7	42.7
Austria	27.2	18.8	77.7	60.0	35.8
Poland	26.5	13.1	66.1	52.7	31.0
Portugal	33.4	11.9	67.7	54.2	33.5
Romania	28.9	13.6	63.7	44.6	30.2
Slovenia	21.3	15.7	71.0	55.5	31.1
Slovakia	26.3	16.1	69.2	52.9	32.3
Finland	35.7	22.6	77.6	63.1	40.8
Sweden	45.4	26.0	79.2	71.2	47.2
United Kingdom	39.3	20.7	75.3	63.9	41.3
<b>EU28 (average)</b>	<b>31.1</b>	<b>17.9</b>	<b>70.7</b>	<b>57.5</b>	<b>35.7</b>

Source: Active Aging Index Project. <https://statswiki.unece.org/display/AAI/Active+Ageing+Index+Home>

<sup>a</sup>For each domain, the arithmetic weighted average of the indicators (ranging 0–100) is calculated. The overall score is calculated as the arithmetic weighted average of the domain-specific indices. For further details on the methodology: see <https://statswiki.unece.org/display/AAI/Choice+of+the+aggregation+methodology+for+the+AAI>, accessed on July 25, 2020

**Table 14.2** AAI by country clusters, overall and domain specific average score within clusters

Country clusters*	Domain-specific scores				Overall
	Employment	Social participation	Independent, healthy & secure living	Capacity & enabling environment	
1	25.6	14.1	66.9	52.8	31.1
2	25.7	22.7	73.8	60.4	36.4
3	37.5	15.1	68.3	55.9	36.5
4	39.4	23.5	77.6	65.9	43.0
<b>Total</b>	<b>31.1</b>	<b>17.9</b>	<b>70.7</b>	<b>57.5</b>	<b>35.7</b>

Source: UNECE/EC (2019)

\*Clusters contain following countries: 1. Bulgaria, Croatia, Greece, Hungary, Italy, Poland, Romania, Slovakia, Slovenia, Spain; 2. Austria, Belgium, Cyprus, France, Luxembourg, Malta; 3. Czech Republic, Estonia, Ireland, Germany, Latvia, Lithuania, Portugal; 4. Denmark, Finland, Netherlands, Sweden, United Kingdom

2008 and 2018, the overall AAI increased by 10% from 32.1 to 35.7 points (UNECE/EC, 2019). The analysis of the trends in AAI by clusters – as defined above – shows that the increase has been lower in the countries belonging to the first cluster and higher in the countries belonging to the second cluster, while the other clusters are in the middle. Looking at the four domains, there are further differences between clusters: in the employment domain, there is a general increase for all the clusters; in the social participation domain, there is a steady increase for countries belonging to the second and fourth clusters, while the countries belonging to the first and third cluster after an initial increase till 2012 have stagnated and even decreased; in the domain of independent living, countries of the second and fourth domain had a slight increase, while countries belonging to the first and third cluster, after an increase witnessed a decrease from 2014 on; finally, in the four clusters there is an increase in the score of the domain “Capacity and enabling environment” between 2008 and 2018. Over the years, there was a decrease in the gender gap on the overall score average for the EU28 countries. Women have performed better than men in employment, while men outperformed women in the social participation and independent living domains, and in the capacity domain both genders made substantial improvements.

The use of the Active Aging Index framework allows us to verify country progress in implementing policies to foster both paid employment and social engagement of the older population for European Union Member States, because one can observe progress, or lack of it, since 2008 (Zaidi & Howse, 2017). From the policy perspective, on the one hand an easy comparison with other countries and clusters of countries can help to highlight domains where policy interventions are most needed, therefore setting new targets to be constantly monitored. On the other hand, comparisons are also a window of opportunity for mutual policy learning to make older people active members of society in all the domains. Active aging may make it much easier to achieve sustainable pension and healthcare systems (Zaidi & Howse, 2017).

The active aging strategy should go beyond the analysis of indicators and policy gaps at the national level: it should also be applied at sub-national levels and for various sub-groups of population. Several European countries already led the way in analysis at sub-national levels: for instance, a study recently conducted in Italy measuring AAI for Italian regions showed that a national approach that takes into account the different attitudes and capabilities of the Italian regions in terms of promotion of active aging strategies is required for creating a set of initiatives that each region can apply according to its particular financial, cultural, social, and geographic background (La Valle & Ambrosetti, 2019). Studies on sub-populations, particularly on the most vulnerable, have also highlighted new challenges arising for the European countries. Among these challenges, it is worthwhile to mention the aging of the migrant population. As a recent study by Cela and Ciommi (2018) has found, the AAI is not designed to take into account the sub-population of migrants, due to the lack of reliable data on such sub-populations and because the system of weights used to compute AAI is not adapted to take into account the characteristics of the migrant population. Therefore, more efforts need to be devoted to including representative samples of migrants in the general population surveys undertaken in the European countries that address population aging.

To conclude, further efforts are needed to foster the active aging strategy in order to take into account the indicators and the policy framework of different sub-populations, such as those suffering from socioeconomic deprivation and from poorer health and those with immigrant backgrounds. Furthermore, policies and indicators should be provided taking into account disaggregation by different age groups: aging does not have the same implications for those aged 65, 75, 85 and so on. Finally, it should be stressed that recent research findings have demonstrated that the active aging strategy may help to mitigate intergenerational conflicts that will likely arise between the younger and the older generations over scarce welfare state

resources. Therefore, policies fostering active aging have an additional added value and need to be implemented (Hess et al., 2017).

## Policies Addressing International Migration

Migration policies can be adopted by both origin and destination countries to regulate the labor demand and supply, as well as to face changes in the population structures of societies. We may distinguish between immigration and emigration policies. However, the debate around migration policies is more focused on immigration than emigration policies, due to the continuous efforts of receiving countries to control and regulate immigration flows (De Haas & Vezzoli, 2011).

### Welcoming Policies

Developed countries, such as the EU countries, generally resort to immigrants to meet the shortage of workers in certain economic sectors, and also to partially alleviate the structural population aging of their societies. Nevertheless, the efficiency of immigration policies in pursuing such objectives is considered rather limited. Evidence demonstrates that immigration policies are not able to regulate the number and the composition of flows (Termote, 2011) and migrants cannot alone invert the long-term population tendencies in hosting societies (Ambrosetti & Giudici, 2013).

Immigration is nowadays one of the most controversial policy issues in Europe. In an effort to limit both migration inflows and long-term settlement, European immigration policies have become formally more restrictive over the last few years (De Haas et al., 2018). In the past, European immigration policies have been designed according to the specific economic and political contexts of receiving countries (May, 2012).

For instance, during the recovery period that followed World War II, many European countries, such as France, Germany, the Netherlands, Belgium, Switzerland, and Austria, adopted policies to recruit foreign labor from southern European countries, such as Portugal,

Spain, Italy, and Greece, and from North Africa and Turkey. Such policies are better known as guest worker programs (*Gastarbeiter*) and have some similarities with the 1942 Bracero Program between the U.S. and Mexico. They were based on a principle of rotation, according to which European countries sought to pull foreign workers into the labor market for a limited period of work and to send them back at the end of this temporary contractual period. The most important examples of guest workers policies were those enacted by Switzerland in 1945, France in 1945–1946, and Germany in 1959–1960, which brought millions of migrants from Southern Europe, Turkey, Yugoslavia, and North Africa into their labor markets. The outbreak of the Yom Kippur War in 1973 and the resulting international oil crisis pushed northern and western European countries to close their borders, by stopping active recruitment of workers from abroad. Guest workers programs ended; however, many guest workers permanently settled and brought their families with them.

### More Restrictive Policies

From that period onward, most western European countries adopted more restrictive immigration policies, revealing themselves to be quite reluctant immigration countries (Wihtol de Wenden, 2009). By contrast, because of stronger economic growth and a fall in birth rates, southern European countries experienced declining emigration and turned into immigration countries, starting to attract foreign workers from North Africa, sub-Saharan Africa, Latin America, Asia, and later from Eastern Europe. In these countries, migrants were largely employed in low-skilled occupations.

The fall of the Berlin Wall in 1989, marking the beginning of the collapse of the Soviet Union and the Eastern European socialist states, produced large flows of refugees from Eastern and Central Europe to Western and Southern Europe. Unlike today, the European Union was quite willing to host asylum seekers who were considered easy to integrate since they were Europeans (Martin, 2016). It was with the ethnic German refugees in mind that the article 16a of the Basic Law for



the Federal Republic of Germany was conceived: *“persons persecuted on political grounds shall have the right of asylum”*. At this time, southern European countries introduced instruments to regularize the status of those who were illegally present and employed in the underground economy, such as amnesties and quotas.<sup>7</sup> The aim of such legislation was to cope with the arrival of many regular and irregular immigrants from Eastern Europe, in the absence of an active immigration policy (Reyneri, 2001).

The signature of the Schengen Agreement in 1985 and the entry into force of the Schengen Convention in 1995 led to the removal of the internal borders within Europe and the introduction of free movement for European citizens. It included all EU Member States, with the exception of the United Kingdom and Ireland, and some non-EU members, namely Iceland, Norway, Switzerland, and Liechtenstein. The construction of the Schengen area was inspired by both a principle of inclusiveness and a principle of exclusiveness. The former led to a growing integration of the European migration system, with a European free migration space and a diversification of the immigrant populations. The second led to increasing external borders control, in order to deal with the threat of irregular migration and, therefore, to ensure the security of its citizens. The Schengen Convention also implemented a common visa policy for short stays (single Schengen visa for all the Schengen countries) and a Visa Information System (VIS) to exchange visa data among Member States. Frontex, the European Agency for the Management of Operation Cooperation at the External Borders of the Member States of the European Union, was created in 2004; its power was further reinforced by the creation of Rabits (Rapid Border Intervention Teams) in 2007. Scholars and analysts consider the foundation of both Frontex

and Rabits as the beginning of ‘Fortress Europe’, i.e., a continent which adopts military measures to cope with the external treat of migration and to ensure the internal security of its citizens.

The EU enlargements in 2004 and 2007, respectively, allowed ten Eastern and two Central European countries to access the EU. Restrictions on accessing the EU labor market for workers coming from these countries were suspended only after a seven-year transition period. OECD data on permanent migration show that together with family reunification, free movement is the most important reason for increased migration in Europe over the years since 2010 (OECD, 2018).

The process leading to restrictive policies toward migrants and refugees has been a constant feature of EU policies for a long time as it started in the 1980s and 1990s. At that time, refugee protection started to be perceived as a cost for European countries. Since then, questions related to migration and asylum have become ‘securitized’ (Trauner, 2016): the *“Union has never stopped to multiply initiatives to discourage new arrivals: the transfer of migration and asylum issues from the third to the first pillar of the Community (the Treaty of Amsterdam had transferred immigration issues to the field of Justice and Home Affairs under the third pillar of EU powers) is what makes immigration an issue related to security”* (Wihtol de Wenden & Ambrosetti, 2016: 6). The economic downturn of 2008 and the political instability in the Arab world since the end of 2010 made the situation even worse, because of financial constraints on some Member States. On the Southern shore of the Mediterranean, North Africa started to attract more migrants from sub-Saharan countries, which, together with those from North Africa, tried to reach Europe.

Yet in 2009 the Lisbon Treaty entered into force and created an “area of freedom, security and justice”. *“It ensures the absence of any controls on persons, whatever their nationality, when crossing internal borders, carrying out checks on persons and efficient monitoring of the crossing of external borders”* (Art. 77 of the Treaty on the Functioning of the European Union, TFUE). Moreover, the Lisbon Treaty provided

<sup>7</sup> In Italy, migration quotas are assigned to specific countries of origin, which have signed bilateral readmission agreements concerning the return of migrants in an irregular situation. Quotas are therefore an incentive for sending countries to participate in the management of migration flows.

the basis for a common policy on asylum, in accordance with the Geneva Convention of 1951 (Art. 78), establishing uniform status, common procedures, criteria, and standards. In 1997, the Dublin Convention had stated the determination of the Member State responsible for an asylum application with the support of EURODAC, a Europe-wide fingerprint database of asylum seekers and irregular migrants. In 2011, the Qualification Directive clarified the grounds on which international protection was granted to asylum-seekers. The Dublin Convention was reformed in Dublin II through regulation 343/2003, which stated that the first state where the asylum seeker enters is responsible for his/her application. In 2013, it was reformed again in Dublin III, through regulation 604/2013, which changed some of the provisions concerning the determination of the EU Member State responsible for examining a request for international protection. The principle of “one stop, one shop”, i.e., no multiple asylum applications, and the norm stating the EU’s intent to avoid “refugees in orbit”, i.e., asylum-seekers for which no Member State takes responsibility, were introduced. The Dublin Convention also established the Schengen Information System (SIS) – which today has become SIS II – a network of personal identification data shared by states in the Schengen area.

In spelling out the EU’s authority on immigration, article 79, para. 2 of the TFEU states that the EU shall adopt measures in the following areas: conditions of entry and residence; definition of the rights of third-country nationals residing legally in a Member State; illegal immigration and unauthorized residence; and combatting human trafficking. However, article 79, para. 4 and 5 of the TFEU affirm that the volume of admissions of third-country nationals (TCNs) and integration procedures are prerogatives of Member States. The EU can only provide recommendations and suggest best practices. On this regard, only two EU directives exist. Directive 2003/86 sets out the conditions to benefit the right of family reunification for TCNs legally residing in an EU Member State and holding a residence permit valid at least 1 year. Directive 2003/109 introduces the possibility to obtain a

‘settlement permit’ (unlimited residence permit) after 5 years of legal residence in an EU member country.

### Migration Crisis

With the so-called Arab Spring, the revolutionary wave of massive protests and civil wars that began in North Africa and the Middle East at the end of 2010, Europe started to see massive arrivals of people from North Africa, western Asia, and the sub-Saharan countries.

The EU’s political response to the ‘migration crisis’ has been considered quite weak and fragmented. It mainly consisted of the ‘hotspot approach’ in Italy and Greece (May, 2015), intra-EU relocation schemes (September 2015), resettlement schemes (July 2015), the EU-Turkey agreement (March 2016), and the Malta Declaration (February 2017). The last two initiatives present a series of problematic limitations on immigration: for instance, the EU-Turkey agreement goes against fundamental EU values, such as the respect for human solidarity and protection; it violates the second para. of Article 13 of the Universal Declaration of Human Rights of 1948, according to which “*Everyone has the right to leave any country, including his own, and to return to his country*”; and it considers that Turkey is a safe country, without taking its economic and political instability into account. The Malta Declaration is also a tool that uses Libya as the main contractor to filter the arrival of immigrants to Europe using the Libyan Coast Guard to help the EU control its coasts and rescue immigrants. In addition, Europe is making bilateral agreements with ‘safe’ third countries to contain and readmit illegal immigrants. These initiatives are similar to previous policies adopted by the EU to prevent immigration, showing a continuity in the management of migration.

The experience of other immigration countries tells us that such policies to halt immigration have already proven to be ineffective in containing immigration but are particularly effective in consolidating criminal organizations and illegal trafficking (Castles, 2004). Indeed, when some migration routes are closed, migrants choose another path, even if more dangerous, to reach

their destinations, as occurred with the closure of routes through Balkans in 2016, which led migrants to adjust their routes across the Mediterranean. Moreover, European countries need migrants to cope with their labor market shortages and population decline; therefore, they tend to close the front door of legal migration, but to open the back door to seasonal, family, and even illegal migration (Joppke, 1998). Furthermore, international obligations make the entry of family migrants, refugees and asylum seekers a moral duty that receiving countries cannot avoid even during particular economic and political conjunctures. However, the long-term dimension of the immigration phenomenon is largely ignored at the European level and the political responses have been emergency-oriented, preferring short-term management of the immigrants' entry and settlement. Possible solutions to the 'crisis' such as implementing the 2001 European directive on temporary protection for immigrants not fitting the criteria of the Geneva Convention, or opening legal channels of labor migration in order to prevent immigrants from illegally crossing borders at peril of their lives, as well as making human trafficking and smuggling less attractive, are not even considered (Wihtol de Wenden, 2017).

### **Policies to Attract High Skilled Immigrants**

The European Council adopted in 2009 the European Blue Card Directive (Directive 2009/50/EC of 25 May 2009) which aims to facilitate the entry and mobility of highly qualified migrants and their family members and to harmonize entry and residence procedures in member countries. This directive is in addition to the policies already adopted by some member countries dedicated to skilled migration. The EU is trying to attract highly qualified workers to address the labor force shortages that are foreseen because of population aging. The Blue Card Directive has not been successful in the first years after its implementation. The number of Blue Cards issued per year has been quite low until recently. Only in 2016 has the number of Blue Cards issued gone beyond 20,000; however, the total number of permits issued for high skilled

migration is still quite low (one out of ten in 2016) compared to the total number of permits issued for labor migration. In general, the situation of high skilled migration varies among countries: the countries of Southern Europe do not attract many skilled migrants. Only France is a pole of attraction for researchers. On the other hand, Northern European countries, particularly Germany, the Netherlands, Denmark, Sweden, and the United Kingdom, do attract skilled labor. Highly qualified migrants are mainly from China, India, the United States, and Russia.

### **Integration Policies**

Concerning integration policies, the EU is not directly responsible for this issue; it supports national and local policies with coordination of member nations' actions, exchange of knowledge and financial contributions. The EU cooperation in the integration of non-EU citizens started with the Council of Tampere in 1999. In 2004, "Common Basic Principles for immigrant integration policy"<sup>8</sup> were adopted with the aim of providing a strong framework for policy-making, assisting the EU States in formulating their integration policies, and providing the EU Member States with a basis to explore how EU, national, regional, and local authorities can interact in the development and implementation of integration policies. In 2005, a "Common Agenda for Integration" was developed by the Commission to implement the Common Basic Principles. In 2007, the European Commission provided Member States with the *Handbook on Integration* to promote good practices among policymakers. In 2009, the "Common Basic Principles" including four core areas (employment, education, social inclusion, and active citizenship) and 14 core indicators of integration were adopted in Malmo. In 2010, during the Zaragoza Ministerial Conference the ministers responsible for integration agreed upon and established a set of core outcome indicators of integration. These indicators were further developed in a pilot

<sup>8</sup> For further details: see [http://www.consilium.europa.eu/ueDocs/cms\\_Data/docs/pressData/en/jha/82745.pdf#zoom=100](http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/jha/82745.pdf#zoom=100), accessed on July 25, 2020.

study published in 2011 on *Indicators of immigrant integration*. Furthermore, in July 2011 the Commission proposed a “European agenda for the integration of non-EU migrants”, focusing on actions to increase economic, social, cultural, and political participation. As part of this agenda, the Commission is trying to provide national authorities with *ad hoc* measures for their particular integration objectives. The main instruments to support integration currently are: the European Integration Forum, for stakeholders involved in integration activities; the European Web Site on integration; a Handbook on Integration, for policymakers and the European Integration Fund. The latter is mainly aimed to support countries’ efforts in the integration of non-EU nationals. Migrants’ integration also represents one of the main issues envisaged by the Europe 2020 Strategy.

Even if the EU is not directly responsible for the integration of immigrants, recent studies have claimed that European countries have converged towards civic integration (Joppke, 2007; Paparusso, 2016). Civic integration policies are designed to foster immigrants’ socioeconomic integration: immigrants are requested upon their arrival (and sometimes even before leaving the country of origin) to sign an “integration agreement” to take language and civic courses to learn the language, the civic values, and the culture of their new country of residence. The grant/renewal of the residence permit and/or the naturalization depends on their success in the civic integration courses, which will otherwise be denied/not granted (Joppke, 2007).

Paparusso (2016) argues that being designed for certain categories of immigrants that are considered difficult to integrate, i.e., those migrating for family and humanitarian reasons, while not being mandatory for high-skilled and temporary immigrants, civic integration policies produce a ‘stratification’ of the immigrant population in hosting societies. Indeed, by providing different integration regimes, civic integration policies amplify the gap between wanted and unwanted migrants. Therefore, despite its lofty language, the European convergence towards the use of mandatory civic integration policies to raise

hurdles for refugees seems designed to support the same approach of EU migration policies as based on the securitization of borders that we have discussed above.

### The Way Forward

To conclude, an alternative to the migration policy paradigm based on securitization and solidarity with the poor may be to (re-)open the legal channels of migration, for both humanitarian and economic migrants, in order to avoid economic and political conflicts in both the receiving and sending countries that may cause crisis-related migration movements. At the European level, two actions seem urgent. First, it is necessary to revise the legislation on asylum, which states that a person can only apply for asylum in the first safe country that has been reached, and has strong constraints on asylum seekers wishing to migrate towards a specific EU destination country (for instance, for family and network reasons). Secondly, there is a need to re-introduce active labor migration policies, such as quotas,<sup>9</sup> designed to take into account the specificities of the labor markets and societal and demographic needs of each EU country. Immigrants have contributed to overcoming the economic headwinds associated with both the aging of the population and the decline in fertility. The re-opening of legal immigration channels would help receiving countries to cope with their domestic labor shortages, in particular with the segmentation of the labor market and the need to find care workers to respond to structural demographic aging. Furthermore, it would help to recognize the phenomenon of immigration as a structural and not a transitory one and, above all, to mitigate negative attitudes towards migrants, which have generally been exacerbated by a political discourse and policy actions dominated by security and emergency issues. This would foster migrants’ social

<sup>9</sup> According to the definition provided by the European Migration Network glossary, “a quota established for and by the country, normally for the purposes of labor migration, for the entry of immigrants”. Policies based on numerical limits or target immigration levels are designed specifically to address labor market shortages.

acceptance in host societies and promote solidarity and integration. Finally, yet importantly, the European Union would also gain from such an option. The liberal values of democracy, freedom, and respect for human rights, on which the EU is founded and which contribute to push migrants to cross the Mediterranean to see a life in Europe, would be more fully respected, with the vital consequence that European citizens would show more optimism and consensus towards the EU institutions, which currently seem to be wavering under many points of view. To re-establish such trust would probably lay the foundation for an effective and sustainable answer to the European crisis of the human mobility.

Lastly, it is relevant to stress that the European Union is also an area of emigration. Historically, European countries have been the main sources of migration to America and Australia. Nowadays many Europeans leave their countries for business or family reasons to move to North America and Australia, and many Europeans move to another EU country. However, emigration is not addressed by EU migration governance, which is currently focusing only on immigration management. Even the rise in outflows from Southern European countries and Ireland subsequent to the crisis of 2008 did not lead the EU to address policies on emigration. Thus, emigration policies are left to the individual states. All EU Member States are active in this area: some of them are almost anti-emigration (e.g., Denmark and the Netherlands), while other have active emigration policies (e.g., Ireland, France, and Germany) (Weinar, 2014).

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## Conclusions

The COVID-19 pandemic is strictly connected to the demography of European countries: demographic characteristics are essential to explain different patterns of mortality between groups and regions, and to model how the pandemic and its socioeconomic consequences will affect Europe in the future. Recent studies (e.g., Dowd et al., 2020; Kashnitsky & Aburto, 2020) show much higher COVID-19 mortality rates at older ages; furthermore, they demonstrate that

disparities in population age structures could cause fourfold differences in the exposure to the risk of dying from COVID-19. As far as intergenerational relations are concerned, recent studies provided evidence that a higher number of COVID-19 cases were recorded in cities where people have stronger social ties (Mogi & Spijker, 2021; Balbo et al., 2020a). What is more, future population trends are going to be affected by the COVID-19 pandemic: even if it is too early to provide accurate estimations, mortality rates and life expectancy trends will likely be influenced; there could be also an impact on intergenerational relations. Fertility rates are also expected to change, and according to the changes witnessed during previous crises, they are expected to fall; lastly, international migration trends have already changed since the beginning of the year 2020 because most of the countries of the world closed their borders due to the pandemic. Because of the economic downturn caused by the pandemic, the downward trend on international migration flows may continue into the near future, though the exact pattern will depend on how fast countries recover from the disease and on the policies they adopt to tackle the crisis.

To design and implement post-pandemic policies, both social and health inequalities in Europe should be addressed, therefore health indicators should be accompanied by key demographic indicators such as age and family structures, intergenerational relations, and individual characteristics including socioeconomic status, ethnicity, and mobility (Balbo et al., 2020b).

Due to the coronavirus pandemic, European social protection systems will face three major challenges in the near future: first of all, they will be confronted by a severe increase of social risks especially for health and unemployment, that will cause a major increase of social expenditure; second, they will have to alleviate the increase of social inequalities across various domains; third, they should provide an European (Union) response based on solidarity.

Yet, the crisis may be seen in a pragmatic perspective as providing a unique opportunity for European countries because they may be

forced to design and implement sound and consensual policies in the fields of families, the elderly, and the immigrants. Indeed, for too long, population policies have not been a priority for European countries. The debate on demographic issues has often been driven by antithetical positions that have served as protagonists for the usual antagonisms between Left and Right. The same type of debate has also characterized the policymakers, demographers, and stakeholders, divided between those who see any future population projections as a misleading obsession and those who predict catastrophic scenarios for Europe should there be a further decline in fertility (May, 2015).

Demographic aging represents an achievement and a challenge for European societies: Europe may become “*a laboratory of population policies for other parts of the world*” (May, 2015: 149) that will sooner or later face similar challenges. However, the catastrophic scenarios for the future of an aging Europe need to be carefully reconsidered in the light of new research evidence. For instance, as argued in a recent study (Marois et al., 2020), the effects of greater education and labor-force participation on productivity will lead to a much smaller increase in the old age dependency ratio compared to the classic scenario provided by UN population projections. In such a scenario, highly educated immigrants and/or increased participation in the labor market by native populations may mitigate population aging. Thus, in order to preserve social cohesion and to foster the well-being of their citizens, European governments are called upon to design specific measures focusing on the social inclusion of older people and on the promotion of active aging to ensure a longer participation of the elderly in the working and social life of their countries. Furthermore, they need to design and implement policies to improve the living conditions of families, to increase women’s labor force participation, and to foster the reconciliation for families of work and family life. Finally, they have to re-introduce active labor migration policies, with the aim of taking into account the characteristics of the labor markets

and the societal and demographic needs of each EU country.

Finally, at the EU level, to tackle the current COVID-19 crisis all possible efforts need to be put in place to implement the principles encompassed by the European Pillar of Social Rights (Social Pillar) launched by the European Commission in 2017. The Social Pillar includes 20 principles to support fair and well-functioning labor markets and welfare systems and it is divided into three chapters: equal opportunities and access to the labor market, fair working conditions, and social protection and inclusion. Clearly the EU response should focus on the protection of the most vulnerable and on the need to strengthen social protection systems to foster the recovery. At the same time, it needs to recognize that the elderly and immigrants, along with women, may be among the most important elements that have to be productively integrated into the labor force to rebuild the economy after the crisis. This will require policies to promote fair inclusion and labor force participation of all members of the population.

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## References

- Ambrosetti, E., & Giudici, C. (2013). L’Europe rajeunie par ses migrants. *Revue Projet*, 355, 32–38.
- Ambrosetti, E., & Paparusso, A. (2012). Respect at borders, respect to borders in the Mediterranean. In B. Cassani & F. Mazzarelli (Eds.), *Education and research without borders* (pp. 219–240). Casa Editrice La Sapienza.
- Anderson, K. M. (2015). Pension reform in Europe: Context, drivers, impact. In S. Scherger (Ed.), *Paid work beyond pension age* (pp. 177–197). Palgrave Macmillan.
- Balbo, N., Billari, F. C., & Mills, M. (2013). Fertility in advanced societies: A review of research. *European Journal of Population*, 29(1), 1–38.
- Balbo, N., Billari, F. C., & Melegaro, A. (2020a). The strength of family ties and COVID-19. *Contexts*. American Sociological Association; see <https://contexts.org/blog/structural-shocks-and-extreme-exposures/#balbo>
- Balbo, N., Kashnitsky, I., Melegaro, A., Meslé, F., Mills, M., de Valk, H., & Vono de Vilhena, D. (2020b). *Demography and the coronavirus pandemic* (Population & Policy Brief 25). Max Planck Society/Population Europe.

- Baldwin, P. (1996). Can we define a European welfare state model? In B. Greve (Ed.), *Comparative welfare systems* (pp. 29–44). Palgrave Macmillan.
- Billari, F. C., & Dalla-Zuanna, G. (2013). Cohort replacement and homeostasis in world population, 1950–2100. *Population and Development Review*, 39(4), 563–585.
- Bonifazi, C., & Paparusso, A. (2019). L'impatto delle politiche familiari sulla bassa fecondità europea. *Rivista delle politiche sociali*, 4, 31–49.
- Boudiny, K. (2013). 'Active ageing': From empty rhetoric to effective policy tool. *Ageing & Society*, 33(6), 1077–1098.
- Carone, G., Eckefeldt, P., Giamboni, L., Laine, V., & Pamies, S. (2016). Pension reforms in the EU since the early 2000's: Achievements and challenges ahead. *European Economy Discussion Paper*, 42, 1–58.
- Cela, E., & Ciommi, M. (2018). Ageing in a multicultural Europe: Perspectives and challenges. In A. Zaidi, S. Harper, K. Howse, G. Lamura, & J. Perek-Białas (Eds.), *Building evidence for active ageing policies* (pp. 211–237). Palgrave Macmillan.
- Chesnais, J. C. (1996). Fertility, family, and social policy in contemporary Western Europe. *Population and Development Review*, 22(4), 729–739.
- Coleman, D. (2006). Immigration and ethnic change in low-fertility countries: A third demographic transition. *Population and Development Review*, 32(3), 401–446.
- Collier, P. (2013). *Exodus. How migration is changing our world*. Oxford University Press.
- Comolli, C. L. (2017). The fertility response to the Great Recession in Europe and the United States: Structural economic conditions and perceived economic uncertainty. *Demographic Research*, 36, 1549–1600.
- Daly, M., & Ferragina, E. (2018). Family policy in high-income countries: Five decades of development. *Journal of European Social Policy*, 28(3), 255–270.
- De Haas, H., & Vezzoli, S. (2011). *Leaving matters. The nature, evolution and effects of migration policies* (DEMIG/IMI Project Paper No. 4). University of Oxford, International Migration Institute.
- De Haas, H., Natter, K., & Vezzoli, S. (2018). Growing restrictiveness or changing selection? The nature and evolution of migration policies. *International Migration Review*, 52(2), 324–367. <https://doi.org/10.1111/imre.12288>
- Demeny, P. (1968). Early fertility decline in Austria-Hungary: A lesson in demographic transition. *Daedalus*, 97(2), 502–522.
- Demeny, P. (2003). Population policy dilemmas in Europe at the dawn of the twenty-first century. *Population and Development Review*, 29(1), 1–28.
- Dowd, J. B., Andriano, L., Brazel, D. M., Rotondi, V., Block, P., Ding, X., Liu, Y., & Mills, M. C. (2020). Demographic science aids in understanding the spread and fatality rates of COVID-19. *Proceedings of the National Academy of Sciences*, 117(18), 9696–9698. <https://doi.org/10.1073/pnas.2004911117>
- Esping-Andersen, G. (1990). *The three worlds of welfare capitalism*. Princeton University Press.
- Esping-Andersen, G. (1999). *Social foundations of post-industrial economies*. Oxford University Press.
- European Commission. (2018). *The 2018 ageing report: Economic and Budgetary projections for the EU member states (2016–2070)* (Institutional Paper No. 79). Publications Office of the European Union.
- Eurostat. (2017). *People in the EU: Population projections*. Eurostat. URL: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=People\\_in\\_the\\_EU\\_-\\_population\\_projections#An\\_ageing\\_society](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=People_in_the_EU_-_population_projections#An_ageing_society)
- Ferrera, M. (1996). Il Modello Sud-Europeo di Welfare State. *Italian Political Science Review*, 26(1), 67–101.
- Gauthier, A. H. (1996). The measured and unmeasured effects of welfare benefits on families: Implications for Europe's demographic trends. In D. Coleman (Ed.), *Europe's population in the 1990s* (pp. 297–331). Oxford University Press.
- Gauthier, A. H. (2002). Family policies in industrialized countries: Is there convergence? *Population*, 57(3), 447–474.
- Gesano, G., & Strozza, S. (2011). Foreign migrations and population aging in Italy. *Genus*, 67(3), 83–104.
- Haug, W., Compton, P., & Courbage, Y. (2002). *The demographic characteristics of immigrant populations* (Population Studies 38). Council of Europe.
- Hess, M., Nauman, E., & Steinkopf, L. (2017). Population ageing, the intergenerational conflict, and active ageing policies: A multilevel study of 27 European countries. *Journal of Population Ageing*, 10(1), 11–23.
- Joppke, C. (1998). Why liberal states accept unwanted immigration. *World Politics*, 50(2), 266–293.
- Joppke, C. (2007). Beyond national models: Civic integration policies for immigrants in Western Europe. *West European Politics*, 30(1), 1–22.
- Karpinska, K., & Dykstra, P. (2015). *The active ageing index and its extension to the regional level* (Discussion paper Peer Review on the Active Ageing Index). European Commission, Synthesis Report Peer Review in Social Protection and Social Inclusion.
- Kashnitsky, I. & Aburto, J. M. (2020). The pandemic threatens aged rural regions most. *OSF Preprints*, 1–2. <https://doi.org/10.31219/osf.io/abx7s>
- Kohler, H. P., Billari, F. C., & Ortega, J. A. (2002). The emergence of lowest-low fertility in Europe during the 1990s. *Population and Development Review*, 28(4), 641–680.
- La Valle, M., & Ambrosetti, E. (2019). Le vieillissement actif en Italie: une analyse par genre et par territoire. In T. Blöss & I. Blöss-Widmer (Eds.), *Penser le vieillissement en Méditerranée Données, processus et liens sociaux* (pp. 219–244). Karthala.
- Lesthaeghe, R., & van de Kaa, D. J. (1986). Two demographic transitions. In *Population: Growth and decline* (pp. 9–24). Van Loghsum Slaterus.
- Luci-Greulich, A., & Thévenon, O. (2013). The impact of family policies on fertility trends in developed

- countries. *European Journal of Population*, 29(4), 387–416.
- Marois, G., Bélanger, A., & Lutz, W. (2020). Population aging, migration, and productivity in Europe. *Proceedings of the National Academy of Sciences*, 117(14), 7690–7695.
- Martin, P. L. (2016). Europe's migration crisis: An American perspective. *Migration Letters*, 13(2), 307–319.
- Matysiak, A., Sobotka, T., & Vignoli, D. (2021). The great recession and fertility in Europe: A sub-national analysis. *European Journal of Population*, 37(1), 29–64. <https://doi.org/10.1007/s10680-020-09556-y>
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer Science & Business Media.
- May, J. F. (2015). Population policies in Europe. *L'Europe en Formation*, 3, 136–150.
- McDonald, P. (2000). Gender equity in theories of fertility transition. *Population and Development Review*, 26(3), 427–439.
- McDonald, P. (2013). Societal foundations for explaining low fertility: Gender equity. *Demographic Research*, 28, 981–994.
- Mogi, R. & Spijker, J. (2021). The influence of social and economic ties to the spread of COVID-19 in Europe. *Journal of Population Research*: 1–17. <https://doi.org/10.1007/s12546-021-09257-1> (Online first).
- Naldini, M. (2003). *The family in the Mediterranean welfare states*. Routledge.
- OECD. (1980–2018). *Social expenditure database (SOCX)*. Available at [www.oecd.org/social/expenditure.htm](http://www.oecd.org/social/expenditure.htm). Accessed 3 Mar 2020.
- OECD. (2018). *International migration outlook 2018*. OECD Publishing. [https://doi.org/10.1787/migr\\_outlook-2018-en](https://doi.org/10.1787/migr_outlook-2018-en). Accessed 9 Feb 2018.
- Paparusso, A. (2016). The European convergence towards civic integration. In E. Ambrosetti, D. Strangio, & C. W. de Wenden (Eds.), *Migration in the Mediterranean: Socio-economic perspectives* (pp. 175–194). Routledge.
- Reyneri, E. (2001). *Migrants' involvement in irregular employment in the Mediterranean countries of the European Union*. International Labour Organization.
- Sobotka, T., & Beaujouan, É. (2014). Two is best? The persistence of a two-child family ideal in Europe. *Population and Development Review*, 40(3), 391–419.
- Sobotka, T., Matysiak, A., & Brzozowska, Z. (2019). *Policy responses to low fertility: How effective are they?* (Technical Division Working Paper Series No. 1). United Nations Population Fund (UNFPA). See [https://www.unfpa.org/sites/default/files/pub-pdf/Policy\\_responses\\_low\\_fertility\\_UNFPA\\_WP\\_Final\\_corrections\\_7Feb2020\\_CLEAN.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/Policy_responses_low_fertility_UNFPA_WP_Final_corrections_7Feb2020_CLEAN.pdf)
- Termote, M. (2011). The efficiency of immigration and integration policies. *Population Review*, 50(2), 90–108.
- Thévenon, O. (2011). Family policies in OECD countries: A comparative analysis. *Population and Development Review*, 37(1), 57–87.
- Thévenon, O. (2015). Decreasing fertility in Europe: Is it a policy issue? In K. Matthijs, K. Neels, C. Timmerman, & J. Haers (Eds.), *Population change in Europe, the Middle-East and North Africa* (pp. 101–136). Ashgate Publishing Limited.
- Trauner, F. (2016). Asylum policy: The EU's 'crises' and the looming policy regime failure. *Journal of European Integration*, 38(3), 311–325.
- UNECE/EC. (2019). *2018 active ageing index: Analytical report*. Report prepared by Giovanni Lamura and Andrea Principi under contract with the United Nations Economic Commission for Europe (Geneva, CH), co-funded by the European Commission's Directorate General for Employment, Social Affairs and Inclusion.
- United Nations. (2000). *Replacement migration: Is it a solution to declining and ageing populations?* United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2015). *World population policies database*. United Nations, Department of Economic and Social Affairs, Population Division. URL: [https://esa.un.org/poppolicy/about\\_database.aspx](https://esa.un.org/poppolicy/about_database.aspx)
- Van Bavel, J. (2020). World population explosion, migration and solidarity in Europe. In I. Van Hoyweghen, V. Pulignano, & G. Meyers (Eds.), *Shifting solidarities. Trends and developments in European societies* (pp. 251–276). Palgrave Macmillan.
- Van Winkle, Z. (2020). Family policies and family life course complexity across 20th-century Europe. *Journal of European Social Policy*, 30(3), 320–338. <https://doi.org/10.1177/0958928719880508>
- Vignoli, D., Drefahl, S., & De Santis, G. (2012). Whose job instability affects the likelihood of becoming a parent in Italy? A tale of two partners. *Demographic Research*, 26, 41–62.
- Walker, A. (2008). Commentary: The emergence and application of active aging in Europe. *Journal of Aging & Social Policy*, 21(1), 75–93.
- Walker, A., & Maltby, T. (2012). Active ageing: A strategic policy solution to demographic ageing in the European Union. *International Journal of Social Welfare*, 21, S117–S130.
- Weinar, A. (2014). *Emigration policies in contemporary Europe*. Migration Policy Centre, CARIM-East Research Report, 2014/01. Retrieved from Cadmus, European University Institute Research Repository, at: <http://hdl.handle.net/1814/31208>
- Wihtol de Wenden, C. (2009). L'Europe, un continent d'immigration malgré lui. *Etudes*, 410(3), 317–328.
- Wihtol de Wenden, C. (2017). *La question migratoire au XXI<sup>e</sup> siècle*. Presses de Sciences Po.
- Wihtol de Wenden, C., & Ambrosetti, E. (2016). Borders, refugees and migration: What right to mobility in the



- mediterranean? *Rivista Italiana di Economia Demografia e Statistica*, 70(2), 5–14.
- Wilkins, E. (2019). *Low fertility: A review of the determinants* (Technical Division Working Paper Series No. 2). United Nations Population Fund (UNFPA). URL: [https://www.unfpa.org/sites/default/files/pub-pdf/FINAL\\_Determinants\\_of\\_low\\_fertility.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/FINAL_Determinants_of_low_fertility.pdf)
- Zaidi, A., & Howse, K. (2017). The policy discourse of active ageing: Some reflections. *Journal of Population Ageing*, 10(1), 1–10.
- Zaidi, A., Gasior, K., Zolyomi, E., Schmidt, A., Rodrigues, R., & Marin, B. (2017). Measuring active and healthy ageing in Europe. *Journal of European Social Policy*, 27(2), 138–157.



# Population Institutions and International Population Conferences

# 15

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## Introduction

Telling the story of the developing international consensus on population, and the institutions created to address it, requires attention to a complex variety of actors with different views and how these developed over time. In this chapter, we outline key elements of this history while trying to respect the ebb and flow of different understandings over time. The chapter first describes the geopolitical perspectives that informed global population debates, leading to a series of international meetings and conferences, most under the auspices of the United Nations (UN), which helped popularize themes and issues pertaining to population and family planning and later, reproductive health and rights, among policymakers, the media, and the public. We then address the creation of population and

development institutions that embodied the internationalization of population, including the complex institutional infrastructure that has developed among nation-states, donor organizations (bilateral, multilateral, private sector, and foundations), academic institutions, and civil societies at national, regional, and global levels. Together, these produced the progressive institutionalization of population and reproductive health concerns within global, regional, and national policy frameworks. While this chapter focuses on international efforts on population, there is another larger story for each country that is specific to the national context (seven chapters of Part II: *Empirical Evidence* of this *Handbook* review regional situations and national developments). Finally, we present current challenges related to population policies and their institutionalization.

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## The Geopolitical Perspectives that Informed Population Debates

The United Nations was created after World War II to try to ensure that out of the global wreckage a system would be in place to prevent another disastrous conflagration.<sup>1</sup> The new UN included

<sup>1</sup> Much as the League of Nations had been formed after World War I, a vision of a shared desire to avoid such massive loss of life was a priority. Several organizations had been created to protect rights and establish collective norms to guide reconstruction and development.

among its ancillary bodies several institutions that had been created earlier. For example, the International Labour Organization (ILO) had been established between the World Wars, and became one of the specialized UN agencies. Similarly, the World Health Organization (WHO), created in 1947, became the UN's normative and scientific international organ to promote global health. The immediate post-war period saw several *ad hoc* multilateral recovery organizations that evolved into global agencies. The United Nations Children's Fund (UNICEF) was established in 1946 to provide assistance and guidance to the children growing up in the aftermath of the war in Europe, but became eventually the UN's chief organ for global data collection and policies on education and child health.

Early UN efforts sought to set standards for governance rooted in basic individual and collective rights, starting with the Universal Declaration of Human Rights, proclaimed by the UN General Assembly (UNGA) in 1948. These principles, and the weakened state of the former colonial powers, initiated a gradual (and frequently resisted or grudging) process of decolonization. International financial institutions (e.g., the World Bank, the International Monetary Fund, and regional institutions, like the steel and coal compacts in Europe that led to the European Economic Commission, precursor of the European Union) were developed to mitigate the risks of economic volatility, aiming to avoid financial crises like the Depression that had contributed to the rise of Fascism and Communism in Europe.

The Cold War divisions among the World War II victors, however, meant that the West and the East advanced their own ideological views of the factors that brought economic development. The West was most concerned with political and economic rights, expecting that increased individual wealth and open contention in the "marketplace of ideas" would advance the general welfare. The East, on the other hand, believed in the "labor theory of value," in which all wealth is created by workers; they argued that more laborers would generate more wealth, and that guided by

ideologically knowledgeable people, this would promote collective welfare.

This political dynamic hindered consolidation and consensus. The West promoted market-based institutions to guide individual behavior, while the East promoted government-based institutions to provide collective welfare. To provide institutional homes (and further ratification of the concepts in the Universal Declaration of Human Rights), the UNGA advanced Commissions and Conventions for human rights. The International Covenant on Political and Civil Rights and the International Covenant on Economic, Social and Cultural Rights reflected the bipolar split (United Nations, 1966b), which was also a precipitating factor in the Cold War.

The intermeshing of ideological positions with policies, strategies, and programs in the area of development placed attention to population in a polarizing position. That the split was also reflected in approaches to addressing Human Rights only further complicated developing international consensus on action programs. Rights discourse had focused initially on the human rights of individuals.

The division between the rights and centrality of individuals and collectives complicated programmatic efforts. This debate impacted all areas of politics, aid, and development, and deeply influenced the international debate over policies and institutions to address population issues.

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## International Population Conferences

### Population Conferences Prior to 1970

The World Population Conference, organized in Geneva in 1927 by the famous birth-control advocate Margaret Sanger, was the first international meeting on population issues. She hoped to legitimize the subject of "overpopulation" in international circles. However, her activist stance was not endorsed by the eminent scientists she invited to the Geneva Conference (McIntosh & Finkle, 2003). Although the conference was not sponsored by the League of Nations (the predecessor of the

UN), its actions paved the way for international assemblies to play a major role in population issues, including the creation of the International Union for the Scientific Investigation of Population Problems (IUSIPP, which became later the International Union for the Scientific Study of Population or IUSSP, described below).

The UN Population Commission, discussed below in more detail, later sponsored the first two modern scientific conferences devoted to population – the first in Rome in 1954 and the second in Belgrade in 1965. These meetings brought together scientific experts rather than governments, and thus were technical and not political gatherings. In Rome, experts from 74 countries debated the need to collect better data on population and establish demography as an autonomous discipline. Overall, ideologies played a rather minimal role in their discussions (Notestein, 1954).

The Belgrade International Population Conference, in 1965, was organized by the UN, the IUSSP, and the International Planned Parenthood Federation (IPPF). Experts from 88 countries studied the relationship between demographic variables and socioeconomic development and discussed the issue of family planning. Differences arose along ideological and religious lines regarding the seriousness of demographic problems and the necessity to establish programs to reduce fertility. It was the first time a discussion of family planning took place under the auspices of the UN, where the topic had always been sensitive (the need for population interventions would only be endorsed by the UN in 1967; see Symonds & Carder, 1973). Since the 1970s, the UN population conferences<sup>2</sup> have been organized in consultation with national foreign and health ministries, engaging political leaders as well as technical experts. This gave the later meetings greater authority and visibility; it also meant that

they became much more political (Finkle & McIntosh, 2002).

## Population Conferences Since 1970

The international conferences on population held in 1974, 1984, and 1994 were mandated through resolutions of the UNGA and were managed by the UN Population Fund (UNFPA), in collaboration with the UN Population Division.<sup>3</sup>

These conferences played an important role in the globalization of population discourse, disseminating knowledge among the public, spreading international population paradigms, and contributing to and fostering a process of collective learning. These events were widely covered by the national and international media and, as such, helped transform population and socioeconomic development issues into a global concern (Chasteland, 2002, 2006; Singh, 2009; May, 2012).

Since they became genuine political gatherings, however, these events provided opportunities for occasionally acrimonious debates. During the conferences, and particularly at the ICPD in Cairo in 1994, the right and left wings clashed, as did supporters of religious values and the advocates of individual rights and freedom through sexual and reproductive health and rights (SRHR) (Hodgson & Watkins, 1997). Agreements were eventually reached during the conferences, although sometimes at the expense of clarity. However, such decisions, especially when vague or controversial, have not necessarily been followed by concrete actions and substantial funding (May, 2012).

The first global inter-governmental conference on population was held in Bucharest in August 1974.<sup>4</sup> It brought together representatives of 137 countries and was organized with a parallel conference of 1400 experts and NGO delegates,

<sup>2</sup> These are different from the Family Planning Summits held in 2012 and 2017 outside of the auspices of the UN (they are described in more detail later in this chapter); see [https://fp2030.org/sites/default/files/About\\_the\\_London\\_Summit\\_on\\_FP\\_-\\_Summary\\_Document.pdf](https://fp2030.org/sites/default/files/About_the_London_Summit_on_FP_-_Summary_Document.pdf) and <http://summit2017.familyplanning2020.org/>

<sup>3</sup> Both organizations are described in more detail in the section of this chapter on institutions.

<sup>4</sup> With the benefit of hindsight, it was a strange decision to choose Bucharest to organize an international population conference that had to deal, *inter alia*, with family planning issues, because Romania was pursuing at the time perhaps the most repressive family planning and abortion policy in the world (Klingman, 1998).

the Population Tribune.<sup>5</sup> The Bucharest Conference took place at the height of the Cold War and amidst concerns over rapid demographic growth in Asia. The background to the discussions was the Third World countries' claim for a New International Economic Order that would advance their wealth and standing. This desire coalesced with diverse nationalistic and religious opposition to family planning (May, 2012).

The meeting was marked by fierce debate between "family planners" advocates, who argued that government action to promote lower birth rates was needed to achieve development, versus "development first" proponents, who were convinced that socioeconomic development was the only remedy to mitigate rapid population growth. The latter group was led by socialist and non-aligned less developed countries, including India, whose minister of population, Karan Singh, famously said at this meeting that "Development is the best contraceptive." The family planners, on the other hand, believed that family planning programs could by themselves curb fertility even in the absence of major progress in socioeconomic development. They further argued that fertility declines were a prerequisite to development (Finkle & Crane, 1975). The main goal of the Bucharest Conference was to prepare a *World Population Plan of Action* (WPPA) (United Nations, 1975). This document, which was to be the first official international declaration on population, was finally agreed upon despite the contradictory positions voiced at the Conference. The WPPA covered the inter-relations between population, development, and the international economy. It also stated couples' right to choose the size

of their family,<sup>6</sup> and governments' responsibility to provide couples with the actual means to exercise this right. Finally, the document insisted on the need to accelerate economic and social development and to promote a new international economic order.

After extensive debate, less developed countries agreed to the WPPA, which committed to a more integrative approach for population and other development strategies and outlined measures governments could take to reach demographic goals, such as the reduction of birth rates, improvement of infant and child mortality rates, improvement in the status of women (with more attention to women's empowerment later), and better income distribution. After Bucharest, new initiatives were launched by donor agencies, some of which were based on more integration (e.g., multi-sector projects of the World Bank). International agencies assisted governments to create special population units to develop technical expertise in demography and population policy. Governments, for their part, attempted to design and implement multi-sector integration, rural development programs, or income generation for women along with family planning components.

The next International Population Conference was held in Mexico City in 1984. The Mexico Conference, at which 147 countries were represented, was convened to assess progress on the WPPA and formulate recommendations for its continued execution. The Conference was prepared during four meetings of experts and five regional conferences. NGOs were invited to a preparatory meeting in 1983 and to the main Conference.<sup>7</sup>

<sup>5</sup> The Population Tribune was held under the auspices of a planning committee appointed by the Conference of Non-Governmental Organizations in Consultative Status (CoNGO) with the UN Economic and Social Council (ECOSOC). It provided a forum for some 1400 non-governmental organizations and individuals interested in population and held at the Faculty of Law of the University of Bucharest. Participants came from all regions of the world with approximately half being women. The Tribune did not, by design, present a formal statement to the Conference itself, but used a daily newspaper *The Planet* to keep both the Conference and Tribune participants informed about the issues of the day, in addition to the many events that were held there.

<sup>6</sup> The WPPA reaffirmed the right – proclaimed at the 1968 International Human Rights Conference – of individuals and couples to decide freely and responsibly the number and spacing of their children (United Nations, 1968).

<sup>7</sup> An International Consultation of Non-Governmental Organizations on Population Issues was convened in Geneva by CoNGO in September 1983. There were nearly 200 participants from 62 international and 30 national NGOs, and the meeting was deliberately scheduled well in advance of the Conference itself so that the views and concerns of the participating organizations could be taken into account in the preparation of the documentation for the Conference. The outcome document was the *Mexico Declaration on Population and Development* (including 88 recommendations) (United Nations, 1984).

In Mexico, delegates reached agreement on the need to design national policies to reduce high fertility levels, as Southern countries abandoned their “all development” line. The Mexico Conference asserted that “*the essential goal of social, economic, and human development, of which demographic policies and objectives are an integral part, is to improve the living standards of populations*” (United Nations, 1984: para. 5). However, the discussions were clouded by a reversal of the United States position on population, following the 1980 election victory of the Republican Party. The new administration denied that there was a “*global population crisis that require[d] drastic forms of intervention by governments*” (Finkle & Crane, 1985: 11). The U.S. delegation questioned the effectiveness of family planning programs and the morality of abortion, instead promoting the role of markets and the private sector to foster economic growth and solve social problems.

The Mexico conference was well covered by the international and national media, popularizing population concerns among a very wide public audience.<sup>8</sup> On July 11, 1987, the world observed the Day of the Five Billion (the day the world’s population reached the five billion mark). As this celebration generated some interest, it evolved into World Population Day, commemorated every year since 1989 with a different theme.<sup>9</sup>

The most significant population conference, the International Conference on Population and Development (ICPD), was held a decade later, in Cairo, in 1994 (McIntosh & Finkle, 1995). The ICPD brought together 180 countries (at that time, the UN had 189 member states; see United Nations, 1995). Before the conference itself, the UN organized six expert meetings, eight round tables on technical subjects, and three preparatory

meetings that were all open to all countries. 1200 NGOs were accredited to participate in the Cairo conference; they played an important role in the discussions, including those surrounding the draft Programme of Action.

NGO Forum ’94 was held as a parallel activity, organized by the ICPD NGO Planning Committee, for organizations with an interest in population, empowerment of women, environmental protection, human rights, development, and health. More than 4200 individuals and representatives of over 1500 NGOs from 133 countries participated. In addition, an NGO Youth Consultation on Population and Development drew more than 100 young women and men from all regions of the world and diverse cultural, religious, and political backgrounds. A meeting of some 300 parliamentarians from 107 countries took place in advance of ICPD, at the end of which participants adopted the *Cairo Declaration on Population and Development*, with the Inter-Parliamentary Union subsequently organizing the 1994 Parliamentarians’ Day in Cairo. Four independent daily newspapers were produced in Cairo for distribution at the Conference.

The ICPD was innovative in that for the first time it proposed quantitative goals, to be achieved over 20 years, for access to family planning services, reduction of maternal and infant and child mortality levels, and expansion of primary education (priority being given to female education). Several issues bitterly divided the participants, namely free access to abortion (opposed by several delegations from Islamic countries, the Holy See, and some non-governmental/pro-life groups); adolescents’ access to contraception; explicit definition of sexual and reproductive health and rights; and the mobilization of resources for the ICPD program. For the first time at a major population conference, the severe consequences for mothers’ health of abortions performed in poor conditions were acknowledged to be a serious public health problem.

The Conference produced the Programme of Action (PoA) of the ICPD. The “Cairo Consensus” that emerged from the PoA highlighted a

<sup>8</sup> For example, the cover of *Time Magazine*’s August 6, 1984 issue portrayed Mexico City as having “the population curse”. The cover story in the issue previewed the International Population Conference held in Mexico City that month; see <http://content.time.com/time/magazine/0,9263,7601840806,00.html>

<sup>9</sup> The theme of the 2021 World Population Day was Rights and Choices; see <https://www.un.org/en/observances/world-population-day>

compromise forged among different constituencies,<sup>10</sup> and provided a blueprint for future national policies and programs (Cohen & Richards, 1994; Hodgson & Watkins, 1997; Hadi, 2017). The ICPD PoA consensus was built on a convergence between concerns about population impacts on development and recognition of the role of individual human rights as a fundamental basis for action. The elevation of human rights concerns was an appropriate response to concerns that family planning programs – particularly in extreme cases – had systematically violated individual informed choice.<sup>11</sup> The PoA advanced the importance of rights: “... *reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents, and other consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children, and to have the information and means to do so; and the right to attain the highest standards of sexual and reproductive health. It also includes their right to make decisions concerning reproduction free of discrimination, coercion and violence, as expressed in human rights documents*” (Programme of Action para. 7.3; see United Nations, 1995).

ICPD did not dismiss demographic dynamics. The final PoA included language that reinforced that countries are justified in focusing on the demographic impact on economic, social well-being, and environmental issues (United Nations High Commissioner for Refugees, 2005), and including demographic factors (e.g., population size, growth, structure) in planning. The ICPD PoA clarified that “demographic goals, while legitimately the subject of government development strategies, should not be imposed on family planning providers in the form of targets or quotas for the recruitment of clients” (Programme of

Action para. 7.12; see United Nations, 1995; Singh, 2009: 73).

Through the Cairo Consensus, in addition to facilitating the demographic transition, countries should provide voluntary family planning in the context of reproductive healthcare, improve maternal and child health outcomes, promote empowerment of women, and protect individual human rights. Attention to gender at ICPD included a call for more active involvement of men in reproductive health, yet given the primacy of women’s rights and empowerment in the ICPD PoA, male engagement was mostly framed as men acting as partners to support the autonomous decisions of women, with less regard for men’s own reproductive health and their rights.

## The ICPD Review Processes

The 1994 ICPD was the last world population conference. However, the ICPD PoA recommendations were subsequently re-examined by UN review processes held every 5 years from 1999 (ICPD+5) to 2019 (ICPD+25).

The first such review (ICPD+5) was held in 1999 in The Hague, The Netherlands, as an inter-regional two-day forum, and was preceded by an NGO Forum and a Youth Forum. A Parliamentary Forum was also held. Before these meetings, a field inquiry was carried out to assess progress that had been made in implementing the ICPD PoA at the country level.

Later that year, the 21st Special Session of the UNGA adopted *Key Actions for the Further Implementation of the Programme of Action of the International Conference on Population and Development*. These Key Actions, as they became known, focused particularly on certain areas of the PoA, expanding the recommendations on what should be done to achieve its implementation within a 20-year time frame. This included setting designated (if aspirational) targets to be attained by 2015, i.e., elimination of all preventable maternal deaths, education targets beyond primary school, and elimination of all unmet need for family planning. This document produced some additional advances on selected

<sup>10</sup> Agreement was reached in Cairo, despite the opposition voiced by some Islamic countries and the Holy See, to provision of safe abortions and further empowerment of women (Chasteland, 2002; DeJong, 2000; May, 2012).

<sup>11</sup> See Chap. 27: *The Contraceptive Revolution* of this Handbook (Cleland, this volume).

contentious issues. For example, it further elaborated the language on abortion as set out in para. 8.25 of the ICPD PoA, by stating that, where it is not against the law, “*health systems should train and equip health-services providers and should take other measures to ensure that such abortion is safe and accessible.*” (Key Actions, para. 63 (iii)).<sup>12</sup> Other areas where it moved forward included: adolescents; HIV/AIDS; data and indicators on the rights of, and services for, migrants and displaced persons; and other similar issues.

Progress was next reviewed in 2004 (ICPD +10) through country-level activities and a series of regional gatherings, technical meetings, and a commemorative session of the UNGA. An NGO Global Roundtable was held in London, and a meeting of parliamentarians was also convened. The principal focus, however, was a global inquiry on in-country progress.<sup>13</sup> The regional gatherings and Commission on Population and Development (CPD) all reaffirmed the PoA adopted at ICPD, although there was no outcome document from the commemorative session.<sup>14</sup>

In 2009, the third five-year review of progress (ICPD at 15) was carried out under the leadership of UNFPA. It reviewed progress in implementation, gave a review of resource flows, and introduced a new cost estimate for the PoA. Later in the year, at a commemorative event at the UNGA, countries reaffirmed their commitment to ICPD. In addition, a number of international meetings associated with ICPD at 15 were held. These included: the High-Level Meeting on Maternal Health-MDG 5, and a meeting of Parliamentarians who agreed to a *Call to Action*, both held in Addis Ababa, Ethiopia; an NGO Forum on Sexual and Reproductive Health and Development held in Berlin, preceded by an

International Youth Sexual and Reproductive Rights Symposium from which a *Youth Statement* was issued; the International Forum on ICPD at 15 “Progress and Prospects” held in Kampala, Uganda; and special events at meetings of the IUSSP and the International Federation of Gynecology and Obstetrics. In addition, UNFPA organized two expert group meetings during the year, one that addressed population dynamics and climate change,<sup>15</sup> held in collaboration with the International Institute for Environment and Development and the other concentrating on reducing inequalities in access to family planning. The first International Conference on Family Planning, Research and Best Practices was also held in Uganda late in 2009, organized by the Bill & Melinda Gates Institute for Population and Reproductive Health, the John Hopkins Bloomberg School of Public Health, and the Makerere University School of Public Health.

Though less visible to the global community, many country-level activities were also undertaken to review progress and discuss challenges. Recommendations, based on national and regional reviews, were made at these meetings for the actions related to the ICPD PoA for implementation by 2015.

Five years later, the fourth five-year review was titled “ICPD Beyond 2014.” Its enabling UNGA Resolution 65/234 requested all relevant UN organizations and other relevant international organizations, to “*undertake an operational review of the implementation of the Programme of Action (PoA) on the basis of the highest-quality data and analysis of the state of population and development, taking into account the need for a*

<sup>12</sup> See Chap. 28: *The Role of Abortion in Population Policies* of this *Handbook* (Crane & Maistrellis, [this volume](#)).

<sup>13</sup> The results of the inquiry were published by UNFPA in a report entitled *Investing in People: National Progress in Implementing the ICPD Programme of Action*.

<sup>14</sup> This was not a coincidence because George W. Bush, a Republican President, was in the White House.

<sup>15</sup> The topic of population and climate change has continued to receive attention, including calculations of the beneficial effects on carbon emissions of reaching a low variant world population in 2050 (O’Neill et al., 2010), and calls to include family planning and girls’ education in climate solutions (Patterson et al., 2021). At the same time, there has been pushback on linking population with climate change, on fears of women in less developed countries being ‘blamed’ for something they did not cause (climate change) (Hendrixson et al., 2018). This has led Bongaarts and O’Neill (2018) to ask, in an article in *Science*: is population being “left out in the cold” in global warming policy?



*systematic, comprehensive and integrated approach to population and development issues.*” (see <http://ngosbeyond2014.org/articles/2012/1/9/demystifying-general-assembly-resolution-ares65234.html>).

In response, the UN Population Division and UNFPA produced the *ICPD Beyond 2014 Global Survey*, examining national population programs and their progress, with its results serving to develop a more comprehensive monitoring framework with more suitable indicators of implementation, updated baselines, and new targets. To meet the requirements of the “*highest quality data and analysis*” as stipulated in GA Resolution 65/234, it was based on a common methodology that ensured comparability of results across countries. In addition, NGOs organized their own survey (see <http://ngosbeyond2014.org/articles/2014/2/14/civil-society-responds-to-global-survey-for-icpd-beyond-2014.html>).

Several regional meetings on the *Survey* produced significant documents, such as the Montevideo Consensus on Population and Development from the UN Economic Commission for Latin America and the Caribbean (ECLAC/CEPAL). The Montevideo Consensus, in reaffirming the ICPD PoA, advanced the cause of promoting, protecting, and guaranteeing sexual and reproductive health and reproductive rights. It also recognized the right to make free and informed choices about sexuality regardless of sexual orientation and gender identity, and that penalization of abortion directly increases maternal mortality rates, so states should therefore make efforts to provide safe and legal abortion services and remove legislation prohibiting access to abortion services. The document also reinforced the argument that there is a link between development and equality, through protecting the rights and autonomy of women, gender equality, and women’s exercise of their sexual and reproductive rights (see Chap. 10: *Population Policies in Latin America and the Caribbean: From Carmen Miró to the Montevideo Consensus* of this *Handbook* [Guzman, [this volume](#)]).

The year’s review culminated in the 29th Special Session of the UNGA on ICPD Beyond 2014 in September of that year, with the main agenda item being the goals and procedures for follow-up to the ICPD PoA in the next decade.

Five years later, the UNFPA inaugurated a six-month global consultation process leading to the 2019 Nairobi Summit on ICPD25. The process leading to the Summit and the Summit itself involved hundreds of governmental, non-governmental, and private sector participants comprising thousands of stakeholders. In advance of the Summit, a *Nairobi Statement on ICPD25: Accelerating the Promise* was issued, offering a framework for accelerating the attainment of ICPD goals and objectives by 2030, which governments and other stakeholders could use to support sovereign nation-driven programs and policies.

The primary purpose of the document was as a reaffirmation (the latest in a long series) of the ICPD PoA with some updated priority setting and positioning within the subsequent developments of global development policy processes. The statement acknowledged that: “*Our world has, in many ways, profoundly changed over the last 25 years, and many new issues are influencing the field of population and development, including climate change, growing inequities and exclusion within and between countries, migration, the youth bulge and the prospects of demographic dividends, and increasing demographic diversity*” (see <https://www.nairobisummiticpd.org/content/icpd25-commitments>).

Beyond the call for the “*full, effective and accelerated implementation of the Programme of Action and the subsequent Key Actions for Further Implementation, the outcomes of the review meetings and the Agenda 2030 for Sustainable Development*”, the Nairobi Statement set some accountability milestones. These included specifying key elements of SRHR under Universal Health Coverage (a target, 3.8, of the UN’s Sustainable Development Goal 3 “to ensure health lives and promote well-being for all at all ages”) including the aspiration for zero unmet

need for family planning, zero preventable maternal deaths and maternal morbidities, and zero sexual and gender-based violence and harmful practices.

While not binding on signatories, the Nairobi Statement advanced the priority of including SRHR in Universal Health Coverage (UHC) formulations, with ever greater attention to adolescents and youth<sup>16</sup> and the negative impacts of sexual and gender-based violence and harmful practices. It calls for adequate attention and greater domestic financing of SRHR programs with complimentary international support. The basic priority in the 2030 Agenda for Sustainable Development of *leaving no one behind* was broadly reinforced across a variety of dimensions of historical exclusion. Quality, timely, and disaggregated data was affirmed as a means to the formulation of effective and rights-based policies. Inclusion of adolescents, including younger adolescents, in databases and in discussion and decision processes affecting them was reaffirmed.

During the Summit, countries, UN entities and other international bodies, civil society and youth organizations, the private sector, and other stakeholders made a total of 1250 commitments to women's health and rights. The implementation of these is being monitored, with progress being reported on, by a High-level Commission on the Nairobi Summit on ICPD25 Follow-up, which was established for this purpose. Chaired by the Former President of the United Republic of Tanzania and 27th Governor General of Canada, its members include former heads of state and grassroots activists and youth representatives.

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## Related Conferences on Development, Environment, and Human Rights

### Other Relevant UN Conferences

ICPD can be considered the “mother strand” of population conferences, leading to the various reviews, including the renewed endorsement of

the ICPD PoA, culminating in the Nairobi Summit and implementation of its commitments. The ICPD strand can be followed into global development goals. Prior to attention to such development goals, the UN organized numerous other conferences on subjects related to those discussed at the international population conferences of Bucharest, Mexico, and Cairo. These conferences also played an important role in the formulation of social and economic policies, and addressed a range of social, gender, and environmental issues on a global scale<sup>17</sup> (McIntosh & Finkle, 2003).

The 1968 Tehran Conference was particularly important (United Nations, 1968), as it concerned human rights, a guiding theme for many development agencies, and a theme that was later discussed in many population conferences. Tehran marked the first time a UN Conference declared that individuals and couples have the right to freely and responsibly decide the number and spacing of their children, and to have adequate education and information in this respect. The 1989 Amsterdam Forum promulgated a Declaration for a better life for future generations, with an emphasis on international cooperation.

The 1992 Rio de Janeiro Conference defined sustainable development, a major topic of all subsequent conferences on long-term development. Finally, the Beijing Fourth World Conference on Women (FWCW) and the Copenhagen Summit, both held in 1995, restated women's central role in development. The 1994 ICPD vision was reinforced in the Platform of Action from the 1995 FWCW, at which then U.S. First Lady Hillary Clinton proclaimed that Women's Rights are Human Rights. The FWCW further strengthened the human rights underpinning of the Cairo agenda, including on issues related to access to abortion, coercion, and adolescent policies, programs, and services. Discussions in Beijing were not without tension and the internal disputes and controversies live on since ICPD and the FWCW.

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<sup>16</sup> See Chap. 31: *Priority Groups in Population Policies of this Handbook* (Rotenberg, [this volume](#)).

<sup>17</sup> Important conferences have taken place since these, including for example, the World Humanitarian Summit in 2016 held to address growing humanitarian crises around the world; see <https://agendaforhumanity.org/summit>

As 2000 approached, the UN Secretary General (UNSG) recognized that the coming of the new Millennium provided an opportunity for advancing an integrated set of development goals, obviating the need for multiple sectoral-specific events. Decreased funding for international development had already motivated the World Bank and the International Monetary Fund to work on a set of international development goals (IDGs). Embedding international goals in a multilateral context under the UN offered a way to gain greater political leverage (Hulme & Scott, 2010). As designated in its resolution 53/202 in 2000, the UNGA held “The Millennium Assembly of the UN” and convened a Millennium Summit of the UN as an integral part of it. Attended by 149 heads of state and high-ranking officials from over 40 other countries, it adopted the Millennium Declaration, which contained a statement of values, principles, and objectives for the international agenda for the twenty-first century. The focus on advancing development in the most socially and economically challenged countries and on systematizing actions recommended by the other topical conferences shaped the outcome document significantly and constrained the process of setting particular goals, targets, and indicators to be monitored. The Summit led to the Millennium Development Goals (MDGs).

The eight Millennium Development Goals that were developed under the direction of the UN Secretary-General were to be achieved by 2015, together with targets adopted for regular accountability and monitoring.<sup>18</sup> They included several of the quantitative goals in ICPD and ICPD+5, particularly regarding health and education. By emphasizing outcome goals and targets, the MDGs oriented the monitoring of progress towards numerical data without explicit incorporation of rights concerns in the original Millennium Declaration (an expanded discussion can be found in Barragués Fernández, 2020). While there were goals on maternal and

child mortality and combatting HIV/AIDS, tuberculosis, and malaria, the primary ICPD goal of universal access to reproductive health was missing from the list, as were other development issues (for example, climate change issues were underrepresented). Governments and civil society mobilized to expand the international discussion.

To assist the broad multi-stakeholder consultations to operationalize the Millennium Declaration, the UN Secretariat created the Inter-agency and Expert Group on MDG Indicators (IAEG/MDGs). The UN Secretary General also established an advisory group under the aegis of the United Nations Development Programme (UNDP) and Professor Jeffrey Sachs, Special Adviser to the Secretary General, to produce recommendations for action strategies for each of the proposed goals. Through the Millennium Project, Task Forces were created to produce recommendations concerning targets, indicators, and strategies related to the MDGs.

A set of U.S.-based foundations (Gates, Ford, MacArthur, Rockefeller) were concerned that the MDGs did not include sexual and reproductive health (beyond maternal and child mortality reduction) as an explicit goal or target (Crossette, 2004). The contentious arguments at ICPD and FWCW had led to hesitancy to include these issues in the framework, even though a key central goal of ICPD “universal access to reproductive health services” (henceforth UARH) was the only high-level conference outcome that was not included in the MDGs. The foundations funded the attachment of an adviser on sexual and reproductive health to the Millennium Project Secretariat and tasked the adviser to organize and prepare a report that was subsequently published under Project auspices (Bernstein & Hansen, 2006).<sup>19</sup> When the World Summit was held in 2005, new targets were recommended to be added to the MDGs, including a health target (Target 5b) on universal access to reproductive

<sup>18</sup> See Chap. 24: *Measuring the Effectiveness, Efficiency, and Impact of Population Policies* of this *Handbook* (Tarsilla, [this volume](#)).

<sup>19</sup> One of the authors of this chapter (Stan Bernstein) was hired to undertake this task; another (Marianne Haslegrave) was taken on as adviser and liaison to civil society organizations.

health, with indicators related to contraceptive prevalence and unmet need for family planning. The recommendations took effect in 2007 when the UNSG notified all agencies.

### The London Summit on Family Planning

To rejuvenate attention to family planning,<sup>20</sup> the Bill and Melinda Gates Foundation partnered with the UK Department for International Development (DfID) (now merged with the Foreign Commonwealth and Development Office [FCDO]) to co-host the London Summit for Family Planning in 2012, along with the U.S. Agency for International Development (USAID) and UNFPA. The London Summit produced a partnership, *Family Planning 2020* (FP2020), to achieve the London Summit's ambitious goal of reaching an additional 120 million women and girls with contraception by 2020 in 69 focus countries (two-thirds of them being in sub-Saharan Africa). By 2020, the partnership had reached an additional 60 million additional family planning users in the 69 countries (see <https://fp2030.org/news/arc-progress-2012-2020-what-you-need-know-final-fp2020-progress-report>). The partnership has now been extended to 2030 (FP2030), without a numeric goal; instead with a vision of “*a future where women and girls everywhere have the freedom and ability to lead healthy lives, make their own informed decisions about using contraception and having children, and participate as equals in society and its development*” (see <https://fp2030.org/Building2030>). Although outside of the UN architecture, FP2030 is also relying on commitments from governments to reach this vision.

<sup>20</sup> Cairo had expanded the focus to SRHR, with a loss of attention to family planning, to the consternation of many who considered family planning an ‘unfinished agenda’ (Cleland et al., 2006). Furthermore, its absence from the original MDGs was a wake-up call for the family planning community.

### The Transition to SDGs

The MDGs time horizon envisioned attainment of the goals and targets by 2015. As the date grew nearer, it was recognized that a systematic review and reframing of ongoing efforts would be required. Discussions were directed towards the formulation of a more comprehensive set of Sustainable Development Goals (SDGs), as called for in *The Future We Want*, the outcome document of the UN Conference on Sustainable Development, Rio+20, held in Rio de Janeiro in 2012. Seventeen SDGs were subsequently incorporated into *Transforming Our World: Agenda 2030 for Sustainable Development*, UNGA Resolution 70/1, which was adopted by Heads of State and Government at the UN Summit in 2015.

As with the MDGs, an Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs), composed of Member States and including regional and international agencies as observers, was established. Its remit included development of the Global Indicator Framework (GIF), provision of technical support, capacity-building, and regular review of indicators.

SDG 3 includes the three health goals of the MDGs in its targets. This rationalization of health targets and indicators was marked by several changes. The MDG indicator set for Target 5b had included contraceptive prevalence rate (all methods) and unmet need for family planning. Under the SDGs revision, the indicators became contraceptive prevalence and proportion of demand for family planning being met by modern contraceptive methods.

Reproductive health concerns, especially family planning, entered the SDGs in several places. Under SDG 3,<sup>21</sup> target 3.7 addresses universal access to reproductive health and its integration into national policies and programs. It is monitored by an indicator (3.7.1) of the proportion of women of reproductive age having their needs for family planning met by modern methods. Target 3.8, achieve universal health coverage, including

<sup>21</sup> SDG targets 3.1 and 3.2 address the reduction of maternal, newborn, and child deaths which were also addressed by ICPD.

access to essential healthcare services is monitored by two indicators. A Universal Health Coverage Index (indicator 3.8.1) is used to monitor access to thirteen tracer interventions. One of the four Reproductive, Maternal, Neonatal, and Child Health (RMNCH) components is the 3.7.1 indicator.<sup>22</sup> The Women's Equality goal (SDG 5) addresses multiple dimensions of women's lack of access, resources, and safety. Target 5.6, achieve universal access to sexual and reproductive health and reproductive rights in accordance with the ICPD PoA and Beijing Platform for Action and the outcomes of their review conferences, is monitored by two indicators. Indicator 5.6.1 is a composite measure of women's decision-making power in accessing healthcare, deciding to use contraception and declining sexual intercourse. Indicator 5.6.2 is a composite measure of legal commitments ensuring access to maternal care (including the legal status of abortion, availability of post-abortion care and requiring access to life saving maternal interventions), to comprehensive sexuality education, to family planning services and to sexual health (with three HIV elements and human papilloma vaccination).

The SDGs also addressed ICPD concerns related to elimination of Gender-based violence (target 5.2) and harmful traditional practices (target 5.3, regarding child, early and forced marriage, and female genital mutilation). The SDGs, therefore, placed SRHR concerns together in an explicit unification of RH and women's rights with different components under different goals. Additionally, under Goal 10 (addressing inequalities within and between countries), target 7 calls for countries to "*facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well managed migration policies*".<sup>23</sup>

<sup>22</sup> Indicator 3.8.2 captures whether health spending exceeds 10 or 25% of total household budgets, thereby reducing access. It doesn't examine service specific costs.

<sup>23</sup> Indicator 10.7.2 monitors the number of countries with migration policies directed to this target; see [https://www.un.org/en/development/desa/population/publications/pdf/sdg/SDG\\_10.7.2\\_2019\\_Data%20Booklet.pdf](https://www.un.org/en/development/desa/population/publications/pdf/sdg/SDG_10.7.2_2019_Data%20Booklet.pdf)

Above all, the SDGs seek to remedy weaknesses in the MDGs by the inclusion of some new overarching principles, especially *leave no one behind*, promoting the human rights principles of equality, equity, and non-discrimination. It should also be noted that *Agenda 2030* refers to the demographic dividend. Through the MDGs and SDGs, the ICPD PoA retains relevance in the global development agenda.

Importantly, the SDGs applied to all countries. The MDGs had been defined largely as a program for advancing less developed countries. By contrast, the SDGs encompass 17 separate goal areas (e.g., the environment, gender, labor, etc.) that ensured their relevance to policy in all countries, e.g., universal health coverage is among the SDG goals.

Addressing 'population', although the topic of expert reviews prior to the MDGs and the SDGs, is not included in the goals. The acceptance of universal health coverage (UHC) as an SDG target (3.8) has created a new arena for challenges to addressing family planning, safe abortion, and adolescent services (Gilby et al., 2021). Advocacy is already underway to ensure that SRHR concerns remain part of the UHC discussions (see, for example, El Kak, 2020).

## Demographically Specialized Conferences

Paying tribute to the fact that the world is more heterogeneous in demographic terms than it has ever been (see Chap. 1: *Contemporary Population Issues* of this *Handbook* [Goldstone & May, [this volume](#)]), there are now many more demographically specialized conferences. These include, for example, UNFPA's Seoul Symposia on Ageing and Low Fertility, held annually since 2017, which bring together academics, policymakers, civil society, and the private sector to discuss the latest trends in population aging and fertility, as well as related issues of gender and human capital, the needs of older persons, and the aspirations, attitudes, and anxieties of younger persons. Together with the Government of Bulgaria, UNFPA and the European

Commission organized the First Ministerial Conference on Demographic Resilience for Europe and Central Asia (see <https://eeca.unfpa.org/en/shaping-europes-demographic-future>). The 2021 conference sought to shift the discussion away from seeing demographic change, notably population aging and population decline, as a threat, and to focus on the opportunities that are associated with demographic shifts. It also stressed that any efforts to shape a country's demographic future must be based on human rights, must be gender responsive, people-centered, and, of course, evidence-based.

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### Primary Institutions and Complex Institutional Infrastructure

While the UN and various regional and civil society organizations were developing agendas and goals at international meetings, nations and multilateral organizations were also developing national and transnational institutions to develop and implement population policies. Such organizations, like the international goals, reflected competition among different viewpoints (paradigms), national, regional, and global institutions and actors, including civil society, all seeking to mobilize global attention and action (Caldwell, 2003; Chamie, 2003; Haaga, 2003; MacDonald, 2003).

In the 1950s, and especially during the 1960s and the 1970s, many governments in the less developed countries created national institutions to tackle population and family planning issues. In addition, the creation of several international and transnational population institutions focused on development and family planning spearheaded the internationalization of population issues.

In 1976, the UN Population Division started asking countries their views on population and if they were taking steps to address their demographic dynamics. Its 2015 review found that all countries with high fertility and two-thirds (64%) of countries with intermediate levels of fertility had policies to lower fertility (United Nations, 2018). Within the less developed countries, the institutional choice was either to create

freestanding population administrations or to load existing governmental departments with additional population-related tasks. Sometimes, a dual approach prevailed: strategic functions of population programs were attached to the Ministry of Planning, whilst health aspects of these programs (e.g., the delivery of family planning services) were the purview of the Ministry of Health. Several countries established Population Planning Units, supported by UNFPA, to ensure the use of population data in planning. However, these Population Planning Units, even when placed in Ministries of Planning or special Executive offices, were under-resourced and not integrated into key budgetary discussions. Many countries established national population councils to coordinate population activities. Nevertheless, administrative arrangements were variable, depending on the administrative culture of the country and their historical (e.g., colonial) experience.

The countries that had decided to set up freestanding population institutions usually opted for “vertical” family planning programs, which focused on support for family planning. These were anchored either in Population Offices (like Tunisia; see Brown, 2007) or, more commonly, within the Ministry of Health. Several countries, on the contrary, decided to promote integrated family planning programs, where family planning services were delivered as part of a broader package of health services. Some countries started with “vertical” programs and shifted later to integrated services, often with poor results as in the case of Haiti (Allman et al., 1987). Still, other countries opted for a hybrid system, where family planning services were delivered by the Health Department, whereas another ministry (e.g., Ministry of Planning) was given the task to design strategies and conduct information and advocacy campaigns. In Latin America, the private sector occasionally supplemented the efforts of public authorities, as exemplified by Colombia (Measham & Lopez-Escobar, 2007). Generally, the tasks of census and survey data collection and analysis were given to national institutes of statistics, usually housed in the Ministry of Planning or Finance.

After World War II, a vast network of international agencies concerned with, or specializing in, population and family planning issues appeared in addition to these country-level efforts. The UN became an important place to highlight development concerns. As compared to purely national actors, including bilateral assistance donors, the UN sees itself as an impartial leader, able to set common priorities, reach and constantly elaborate consensus on values and programs, and interact with countries with a spirit of neutrality in political disputes. Consideration by the UN serves an important legitimization function for major issues. Among the fundamental characteristics of UN bodies are their capacity to maintain political neutrality (important during the polarizing Cold War years), to attend to human rights concerns, and to act as convening authority at global and regional meetings, as well as having ongoing close working relationships with national authorities. The UN has little power of enforcement of its decisions. However, it can improve accountability by granting visibility to national conditions and focus attention through its convening authority.

### **Development of the UN Organizations Dealing with Population**

The UN is a diverse and complex bureaucratic organization (see <https://www.un.org/en/model-United-nations/un-structure>). Several key components of the UN play a key role in systemic efforts to monitor and address population and population-related concerns. These include the UNGA, the primary legislative body, and the Economic and Social Council (ECOSOC), which provides information and support to the UNGA based on input from standing committees and authorized Divisions. The UN conducts its work through UNGA resolutions, ECOSOC resolutions, authorized Conference proceedings (ratified by the UNGA), and treaties promulgated by its constituent bodies. Human Rights treaty bodies and various special rapporteurs appointed by the UNGA provide another route for the

expression of international consensus to guide member states.

The Population Division (PopDiv), established in 1946, is the most relevant division related to ECOSOC. Its guiding executive body is the Commission on Population and Development (CPD, renamed from the Commission on Population following the 1994 ICPD). CPD meets annually to ratify the work plan of the PopDiv and receive its reports. The Chair of the CPD is elected from a member state, and CPD is supported by the PopDiv and UNFPA. PopDiv's annual work plan includes, among other activities, regular biennial reports on the estimated size, structure, and projected prospects of national populations. Every five years, the PopDiv also undertakes a survey of member states' policies and programmatic actions related to various demographic components (mortality, fertility, and migration). The PopDiv also monitors the status of SRHR levels and differentials related to SDG targets and indicators. Additional analytic reports are also produced on selected topics (see, for example, [https://www.un.org/en/development/desa/population/publications/pdf/family/familyPlanning\\_DataBooklet\\_2019.pdf](https://www.un.org/en/development/desa/population/publications/pdf/family/familyPlanning_DataBooklet_2019.pdf)).

The UN's international conferences on population were mandated by the UNGA and ECOSOC, with resolutions originating in the CPD and going through the ECOSOC. The documents officially issued by UN conferences and formal meetings are drafted on the basis of a consensus of the participants. This leads to politically sensitive discussions and compromises.<sup>24</sup> It can also lead to countries filing explicit reservations to consensus statements. However, conference documents (unlike ratified treaties) have no enforcement mechanism, so they act mainly as guidelines for national sovereign decisions.

By the 1960s, the topics of population and family planning had truly become international

<sup>24</sup> Thematic topics related to the implementation of the ICPD PoA are addressed annually in the CPD, as is a report on the flow of financial resources for implementation. Similarly, each meeting of the CPD has sought to further elaborate the consensus on contentious issues. However, continuing debates have blocked consensus documents at some of the sessions.

issues, partly due to the efforts of the “*Population Movement*” in the U.S. There was pressure on the UN to engage these issues, but because the World Health Organization (WHO) was reluctant to embark on large-scale family planning programs, a new UN agency was created whose mission was to promote and fund population and family planning interventions worldwide (May, 2012).

The United Nations Fund for Population Activities (UNFPA), now known as the UN Population Fund (but with the same acronym, UNFPA) grew out of efforts by the UN Secretary General, starting in 1967, to fund assistance to countries in areas related to population. In 1969, the fund was transferred to the United Nations Development Programme (UNDP). General William Draper, who had identified rapid population growth as a national security concern in his Draper Report (1959) on U.S. military aid, was a major figure initiating support for UNFPA in the U.S., Germany, and Japan.

In 1973, UNFPA was given a mandate from ECOSOC to build the knowledge and capacity to respond to needs in population and family planning, promote awareness of population problems and strategies to deal with them, to assist population programs in the forms and means suited to individual countries’ needs at their request, and to assume a leading role in the UN system in promoting and coordinating population programs. This mandate was reaffirmed in 1993 and remains active. Unlike bilateral aid agencies, UNFPA maintains relationships with the 150 countries which make voluntary contributions (see <https://www.unfpa.org/how-we-work>).<sup>25</sup>

In 1974, under its first Executive Director (see below) it used a UNGA Declaration of World Population Year to promote the establishment of national population commissions as liaisons with

Governments. During the next two decades, UNFPA, together with USAID, funded the World Fertility Survey (precursor to the Demographic and Health Surveys) and a major African census program (as well as subsequent family planning programs on the continent). Program and project activities have continued in all regions of the less developed world. Originally intended to increase visibility of UNFPA and population issues, the World Population Day on July 11 has provided since 1987 an opportunity for national observance and commemoration.

Along with providing technical support to countries, in collaboration with other UN agencies early on, a hallmark of UNFPA operations has been a regionalized and decentralized structure, under guidance and in collaboration with UNFPA Headquarters in New York.

UNFPA’s current strategy to 2030 is to accelerate progress in implementing the ICPD PoA, and to reach its three transformational results – ending the unmet need for family planning, ending preventable maternal deaths, and ending gender-based violence and harmful practices and reaching the furthest behind (linked to *Leaving No One Behind* from the SDGs) (United Nations, 2021). While its work focuses on women and girls, UNFPA has also addressed programming for men and boys, which was called for in the ICPD PoA.

UNFPA has had five Executive Directors in its 50 years. While overseeing the entire mandate, each has had their own particular priorities. Rafael Salas was determined to spread the geographical range of countries requesting population support and improving the population database for development planning. After his death, he was succeeded by Dr. Nafis Sadik who oversaw the maturation of the organization and its growing prominence in policy and program activities, especially through the ICPD. The third Executive Director was Thoraya Obaid whose humanities background sensitized her to issues related to culture, gender, and human rights, which was given its own branch under the Technical Division. Her successor, Dr. Babatunde Osotimehin, former Health

<sup>25</sup> Country contributions are reviewed in Chap. 23: *Funding of Population Policies and Programs* of this *Handbook* (Dutta et al., [this volume](#)). Donations range from nominal to substantial (including large contributions from donor countries, which maintain their own bilateral agencies). The large number of countries making these contributions attests to their support for continued efforts related to population concerns.



Minister and director of AIDS programs in Nigeria, gave special priority to maternal health and elimination of harmful traditional practices (early marriage and female genital mutilation) within a broader interest in increased attention to youth. He continued Ms. Obaid's interest in alliance with local community groups and with religious organizations. The current Executive Director, Dr. Natalia Kanem, has rebranded the organization as a sexual and reproductive health agency while continuing its broader interests in programs related to population data, aging, and low fertility settings. She has emphasized rights and justice concerns and given priority to a broad range of partnerships among UN organizations and with local organizations.

UNFPA is a leading agency in procuring and distributing contraceptives, most recently through its Supplies Programme (UNFPA, 2021) and is focused on ending the unmet need for family planning, with a focus on providing a range of quality family planning methods and ensuring that women and adolescents can exercise choice in using contraception. UNFPA, working with governments, NGOs, and other partners, has also been central to efforts to meet SRHR needs and address gender-based violence in humanitarian settings, including distributing dignity kits and emergency reproductive health kits (see <https://www.unfpa.org/emergencies>).

UNFPA co-founded the UN Inter-Agency Task Force on Engaging with Faith-Based actors in 2010. This task force annually convenes policy dialogues among faith-based partners from various religions, governments, development, and humanitarian organizations, and other groups (UNFPA, 2015). Policy discussions have ranged from human rights, to development and peace and security issues.

UNFPA has been the leading population institution to work with global, regional, and national human rights mechanisms to heighten awareness of SRHR in monitoring of human rights treaties and conventions<sup>26</sup> (Filmer-Wilson & Mora,

2018). In addition to developing guidance (UNFPA, 2019) and working with country-level national human rights institutions to strengthen their capacity to undertake reviews of SRHR in their countries to address human rights issues, UNFPA has published assessments of SRHR in two rounds of Universal Periodic Reviews (UNFPA, n.d.-a., n.d.-b).<sup>27</sup> Analysis of two cycles of UPR recommendations (for 2008–2011 and 2012–2016) show that slightly over a quarter of recommendations from the rights body are related to SRHR; very few of those are related to family planning. UNFPA has also been involved in translating human rights into program guidance (UNFPA & WHO, 2015; UNFPA & What Works Association, 2021).

Just as World Population Day raised the visibility of UNFPA and population concerns, its annual flagship publication, *The State of World Population*, disseminates information, policy guidance, and action recommendations to advance the mission of the Fund. Each year a thematic topic is given prominence. Since 1980, these have addressed topics covered in this *Handbook* including: women's agency, rights, and empowerment; migration; urbanization; reproductive health and rights; adolescent issues (health, agency, social and educational prospects, pregnancy); population age structure and its impacts; population and development concerns; gender-based violence and harmful traditional practices; and humanitarian assistance. Its 2021

(United Nations CESC, 2016) defines the elements of the right to the highest attainable standard of sexual and reproductive health, including family planning. It explains in detail state parties' obligation to respect, protect, and fulfil individual's sexual and reproductive health and rights, specifically assuring that reproductive health and family planning programs apply the principles of availability, accessibility, acceptability, and quality (AAAQ) as well as non-discrimination and equality (UNFPA & What Works Association, 2020; see also Chap. 27: *The Contraceptive Revolution* of this *Handbook* [Cleland, this volume]). Member states and other stakeholders can file reports to the Human Rights Council's Universal Periodic Review process.

<sup>27</sup> UNFPA also works with treaty bodies, e.g. those related to the Convention on the Elimination of Discrimination Against Women (CEDAW) and the Convention on the Rights of Children (CRC).

<sup>26</sup> In 2016, General Comment 22 to Article 12 of the Committee on Economic, Social and Cultural Rights (CESCR) on the Right to Sexual and Reproductive Health

*State of the World Population Report* focused on advancing ideas of reproductive justice and bodily integrity as alternate – less stigmatized – language related to controversial subjects like gender-based violence and sexual rights (see <https://www.unfpa.org/swop>). In addition, each year the UN issues a Population Award to organizations and individuals highlighting their contributions to regional, global, and national development efforts.

While UNFPA leads the UN on population policies, the World Health Organization (WHO) also plays a major role, especially as rights to sexual and reproductive health are now at the center of the population policy agenda. WHO was established after World War II to spur actions to improve global health and provide guidance and review of national health plans. Its Charter broadly defined health as a “*state of complete physical, mental and social well-being and not merely the absence of disease and infirmity*”. Action on such a broad agenda remains a challenge in an organization primarily directed to and by physicians and other medical personnel.

The ICPD PoA started with WHO’s definition of health in advancing the concept of reproductive health: “*Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant*” (ICPD Programme of Action, Chapter VII, para. 7.2; see United Nations, 1995).

Health policy also influenced the ICPD PoA through the recommendations advanced at the 1978 International Conference on Primary Health Care in Alma Ata (see [https://www.who.int/publications/almaata\\_declaration\\_en.pdf](https://www.who.int/publications/almaata_declaration_en.pdf)). The Alma Ata Declaration went beyond simply promoting the formal provision of health services to advancing recognition of universal *rights* to health and healthcare, rooted in understanding the social and economic dimensions of community health.

The programmatic recommendation from Alma Ata for a fundamental core package of services directed to improving the health of women and children was encapsulated in the initiative to make Growth Monitoring, Oral Rehydration, Breastfeeding, and Immunization (GOBI) a key part of every primary healthcare system. Subsequently, the package was expanded to become GOBI-FFF, where the three f’s stand for Food Supplementation, Family Planning (or Family Spacing), and Female Education (the sensitivity of family planning in many traditional societies and social groups led to alternative terminologies).

The World Health Organization hesitated to promote large-scale family planning programs because in the 1960s and 1970s, family planning services were not widely considered an essential part of health services. In addition, religious lobbying (especially from the Catholic Church) prevented WHO from truly committing its technical and financial resources to family planning and contraceptive coverage (Symonds & Carder, 1973). Such factors delayed the creation of a formal unit devoted to Reproductive Health within WHO. It was only following ICPD that reproductive health was given more prominence, and that WHO named an Executive Director for Family and Reproductive Health (Sai, 1997: 4).

Still, WHO continues to give overwhelming prominence to disease prevention and treatment. For example, in the post-Cairo context, WHO and the World Bank collaborated on a modelling tool to examine anticipated health intervention impacts and prioritize investments: the Marginal Budgeting for Bottlenecks (MBB) model (see

[http://www.who.int/pmnch/topics/economics/costing\\_tools/en/index12.html](http://www.who.int/pmnch/topics/economics/costing_tools/en/index12.html)). Initially, the tool did not include family planning as an intervention. With inputs from UNFPA, family planning was added to the approach that was subsequently generalized into the OneHealth model (see <https://www.who.int/tools/onehealth>).

In 2007, WHO identified six health system building blocks for a strong health system and positive health outcomes (see [https://www.who.int/healthsystems/strategy/everybodys\\_business.pdf](https://www.who.int/healthsystems/strategy/everybodys_business.pdf)). Noting a lack of attention to the social context of health delivery, WHO issued in 2010 the social determinants of health framework (Blas & Kurup, 2010). A chapter was devoted to equity and social determinants related to unintended pregnancy and pregnancy outcomes (Malarcher et al., 2010).

In 2019, the International Conference on Universal Health Coverage issued a declaration: “Universal health coverage: moving together to build a healthier world” (see <https://www.who.int/docs/default-source/primary-health/declaration/gcphc-declaration.pdf>). In the wake of this conference and the prioritization of universal health coverage in the SDGs, WHO undertook some internal reorganization. The departments in the family, women, and child health cluster were more closely tied to the health systems group. Most recently, a new Universal Health Care Life Course Division has been established to take a systemic approach to issues related to maternal, newborn, child and adolescent health, immunization, health labor force, and finance concerns and service integration.

Within WHO there is an externally-funded partnership, the Special Program on Reproductive Health (HRP), that sponsors research related to family planning (FP) and reproductive health, provides technical assistance, and continues to ensure that ICPD principles are recognized in WHO’s policies and programs. It also helps ensure that family planning remains part of health system policy and programming, and highlights global best practices. This is achieved through housing the Implementing Best Practices (IBP) partnership and collaborating on global initiatives, including FP2020/FP2030 (see

<https://fp2030.org/>) and the Family Planning High Impact Practices (see <https://www.fphighimpactpractices.org/>). The WHO also hosts the Partnership for Maternal Newborn and Child Health (PMNCH) a large consortium advocating for policies, financing, and services for women’s, children’s and adolescents’ health with diverse constituencies of stakeholders (see <https://www.pmnch.who.int>).

New international policy declarations and associated normative guidance continue to be WHO priorities. WHO has continued to promulgate normative standards for Medical Eligibility Criteria for contraceptive options (see <https://www.who.int/publications/i/item/9789241549158>) and has issued guidance on ensuring human rights in contraceptive services (World Health Organization, 2014). In 2020, the WHO issued an online comprehensive guide to Universal Health Coverage components (see <https://www.who.int/universal-health-coverage/compendium>), that provides information by program area, organizes services by age groups, provides costs and impacts, and discusses intersectoral and population-based information. It also provides guidance on necessary supportive activities related to strategic planning, priority setting, and governance. The compendium also covers interventions related to the attainment of various SDGs (including 3.7 and 5.6 and those related to gender-based violence and harmful traditional practices), specifically those addressing contraceptive services, infertility, and abortion and abortion-related care as well as maternal, newborn, child, and adolescent health.

Other specialized UN agencies, e.g., the International Labour Organization (ILO), the World Bank, and several regional development banks also became involved in population and family planning programs.

It is now widely agreed that population issues should be at the core of the development strategies promoted by the World Bank Group (May, 2018). Robert McNamara, the Bank President from 1968 to 1981, brought these issues prominently to his agenda, often considering population simply as the denominator and GDP as the numerator of the GDP per capita, a key

development indicator. The *1984 World Development Report* (WDR), with its core section on Population Change and Development, was devoted to global population trends and policies (World Bank, 1984). The report was published a few months before the 1984 International Population Conference in Mexico City.

Following McNamara's days, however, population issues somewhat faded from the Bank's priorities. Many development practitioners came to view the population question as being "resolved" after the Green Revolution boosted food output and fertility began its rapid decline in Eastern and Southern Asia. Moreover, the World Bank's neo-classical economists were never truly convinced of the importance of population trends in economic development. In 1994, a Bank economist challenged the effectiveness of population policies and family planning programs in reducing fertility levels (Pritchett, 1994). Also, in 1986 the U.S. National Academy of Sciences had issued a report concluding that the population factor was neutral with respect to economic development (U.S. National Academy of Sciences, 1986).<sup>28</sup> Finally, many political leaders, especially in sub-Saharan Africa, began to argue that reducing population growth was a Western plan to diminish Africa's importance, and advocated pronatalist policies; the World Bank was afraid to antagonize its client countries on this sensitive issue.

Nonetheless, in recent years the World Bank has renewed its efforts to address population issues. In addition to its lending in the health sector (including family planning and reproductive health) and its occasional support to data collection (censuses and surveys), the World Bank is also doing work on population aging, pensions financing, labor force prospects, jobs requirements, and remittances from migration, although these efforts are scattered among various branches of the institution.

Today, the great economic success of East Asian countries following their reductions in

fertility has shifted the population and development debate. Now the major policy challenge is whether sub-Saharan Africa can replicate the experience of East Asia and capture the benefits of a first demographic dividend. This process is defined as an economic surplus triggered by the changes in the age structure that flow from reduced fertility, thanks to the relatively larger proportion of active adults and the smaller number of dependents, especially young dependents, that this produces (see Chap. 19: *Policies Needed to Capture Demographic Dividends* of this *Handbook* [Turbat, [this volume](#)]). The focus on the demographic dividend has again made population and family planning central to efforts to promote economic development. In conjunction with the International Monetary Fund, the World Bank has also prepared a *Global Monitoring Report 2015/2016: Development Goals in an Era of Demographic Change* in which all countries of the world are classified according to the framework of the demographic dividend (World Bank & International Monetary Fund, 2016). For the first time since the 1984 WDR, population issues have been addressed again in a global strategic document, along with a unifying conceptual framework.<sup>29</sup> The Bank has also launched the *Sahel Women's Empowerment and Demographic Dividend* (SWEDD) project to promote achievement of the demographic dividend in seven high-fertility countries in West Africa, an effort that will be extended to other sub-Saharan countries.

### Population Assistance from the U.S.

In addition to the multilateral efforts of the UN and its specialized agencies, individual nations have also established programs to address population issues, both international and domestic. The U.S. has been the largest donor to

<sup>28</sup> The conclusion of this analysis might have been rather different if the NAS panel had examined the relationship between economic growth and *fertility* (May, 2019).

<sup>29</sup> Major demographic forces – rapid population growth in some regions, population aging in others, and intensified international migration almost everywhere – will make much more challenging the pursuit of global development goals, the creation of jobs for the youth, and the mitigation of the impact of climate change. The World Bank will need to help its client countries to address these new challenges.

international family planning and reproductive health for over 50 years, albeit with shifts in program scope and varying levels of political support (Congressional Research Service, 2020). In 1965, the U.S. Congress authorized the U.S. Agency for International Development (USAID) to create contraceptive distribution programs. USAID has remained the primary government agency administering the U.S. population program. In addition to providing access to voluntary family planning, the focus of USAID programming has always included population stabilization (Sinding, 2016). USAID made its first purchase of contraceptives for distribution in 1968 and its Office of Population was established the following year (USAID, n.d.). USAID assistance from the 1970s to the 1990s included programs on fertility, reproductive and women's health, and maternal and child health (Congressional Research Service, 2020: 3).

USAID has been a leader in population research as well as policy. To date, USAID has been involved in the development of nearly every method of contraception (USAID, 2021a). In 1972, USAID began supporting the World Fertility Survey, leading to "*the world's largest survey research effort, the Demographic and Health Surveys (DHS) Program*" through which USAID "*provides technical assistance to implement over 300 household and facility-based surveys in Africa, Asia, Latin America/Caribbean and Eastern Europe*" (USAID, 2021a: 2). In 1992, the U.S. Congress allocated funding for USAID to develop a program on population, health, and the environment, which has evolved into a focus on population, environment, and development (USAID, 2021b).

U.S. government funding for family planning and reproductive health is governed by several legislative requirements and policies (Congressional Research Service, 2020), beginning with the Helms Amendment in 1972 that bans the direct use of U.S. funding overseas for abortion. This was augmented in 1984 by the "Mexico City Policy", named for the 1984 International Population Conference which took place in Mexico City. More commonly known as the "Global Gag Rule", this policy denied foreign NGOs from receiving

U.S. assistance if they were involved in any way with legal abortion, even if paid for with non-U.S. funds (Lasher, 1998; Kaiser Family Foundation, 2021). Over the years, this policy has been imposed by some U.S. Administrations and rescinded by others. USAID implemented programming under this policy from 1984–1993, 2001–2009, and, under its successor the Protecting Life in Global Health Assistance policy from 2017–2021 (USAID, 2021a). Funding for UNFPA was also affected by the policy positions of various U.S. Administrations, starting in 1986 when defunding of UNFPA was linked to China's One-Child policy.

The 1994 ICPD came at a fortuitous time, with a positive policy window in the U.S. A supportive president was in office and there was more congressional support than opposition to international family planning, despite ongoing domestic debates about abortion. The year prior, President Bill Clinton had rescinded the Mexico City Policy and his Administration restored funding to UNFPA. With this change in its policy stance, the U.S. was able to be actively involved in developing and shaping the ICPD PoA, and acting on its recommendations (Wilson Center, 2015). For example, USAID reorganized the Office of Population into the Office of Population and Reproductive Health (PRH) (USAID, n.d.; Congressional Research Service, 2020), which formed an Inter-agency Gender Working Group (IGWG) to support the gender-transformative programming that was highlighted at ICPD (see [www.igwg.org](http://www.igwg.org)).

ICPD called for greatly increased funding for family planning and reproductive health. Funding from the U.S. rose steadily during the first two decades during which the population program garnered bipartisan political support, but other than short-lived increases, funding levels have been relatively stagnant over the years between 2011–2021 (Speidel et al., 2009; Kaiser Family Foundation, 2021), with hope for increases in funding under the supportive Administration of President Joe Biden. USAID currently provides family planning and reproductive health assistance to around 40 countries and 24 countries have 'graduated' from USAID assistance (USAID, 2021a).

## Other Bilateral Donors and Private Foundations

Among the most important European bilateral donors are the Nordic countries (which use international development assistance as an alternative to military spending to pull well above their weight in international affairs), the UK's Foreign Commonwealth and Development Office (FCDO, into which the former DfID merged), and the German *Gesellschaft für Internationale Zusammenarbeit* (GIZ), all of which generously contribute to population and family planning programs. In addition, Switzerland's Agency for Development and Cooperation (ADC), and Japan's efforts, both multilateral and bilateral, have also been important, even if Japan has often relied on third parties (e.g., multilateral institutions) for implementation (May, 2012).

Besides the UN, other multilateral and regional groups, and national organizations, private foundations have also been part of the complex set of institutions promoting research and policy on population issues. Private foundations have played a role in setting the agenda, funding leading-edge research, and developing policy proposals for the UN and national development agencies. Several foundations long active in supporting family planning and very active in the earliest days of the Population Movement, including the Rockefeller Foundation (see <https://rockfound.rockarch.org/family-planning>), the Ford Foundation, and the McArthur Foundation, have since ceased funding in this area (see Bissell et al., 2021). The David & Lucille Packard Foundation has been working on population and reproductive health and justice issues since its inception in 1964 (see <https://www.packard.org/wp-content/uploads/2014/02/PRH-Program-Overview-FINAL.pdf>). The William and Flora Hewlett Foundation (Hewlett Foundation) has been active through its population program since 1967 (see <https://hewlett.org/wp-content/uploads/2016/08/PopulationBrochureEnglish.pdf>). These institutions enjoy a semi-autonomous status, although they must answer to their boards and/or donors (May, 2012).

The Bill & Melinda Gates Foundation (BMGF), launched in 2000, with its funding augmented by Warren Buffet, has become the largest

foundation providing support for family planning,<sup>30</sup> including through co-hosting the 2012 London Summit on Family Planning and funding FP2020, the Partnership to implement the goal of the summit, and its successor, FP2030 (see [www.FP2030.org](http://www.FP2030.org)). The BMGF also funds country programming, promoting capacity building and self-reliance in grantees, with a focus on urban areas. BMGF also supports metrics to measure progress on the FP2020 and FP2030 goals and funds contraceptive development.

## Civil Society and Non-governmental Organizations

The process of planning major UN conferences, and holding extensive side conferences, expanded and empowered civil society organizations (CSOs) and non-governmental organizations (NGOs) to participate in shaping global population policies. Civil Society participation has also grown, particularly leading up to ICPD and during its implementation, evolving from side events with some representation within delegations to major ancillary meetings and extended participation from ever more grass-roots organizations. The Women's Environment and Development Organization (WEDO), established in 1991, played a pivotal role in shaping the Cairo (and Beijing) Agenda (see <https://wedo.org/>). Still active, it continues to advocate for human rights, gender equality, and the environment. Along with WEDO, the International Women's Health Coalition (IWHC) played a critical role in shaping the Cairo agenda (Hodgson & Watkins, 1997). It is now merged into Fòs Feminista, established in mid-2021 by merging three CSOs, i.e., IWHC, IPPF Western Hemisphere Region, and CHANGE. Fòs Feminista's vision is "*to advance sexual and reproductive health, rights and justice through an intersectional feminist lens and a*

<sup>30</sup> The BMGF website notes: "*We're committing US \$280 million per year from 2021 to 2030 to develop new and improved contraceptive technologies, support family planning programs that reflect the preferences of local communities, and enable women and girls to be in control of their own contraceptive care – where, when, and how they want it.*"

*commitment to the leadership from the Global South*” (see <https://fosfeminista.org>). ARROW, the Asian-Pacific Resource and Research Centre for Women, established in 1993, the year prior to ICPD, has consultative status with ECOSOC and has been a strong voice for reproductive rights and justice (see <https://arrow.org.my/>). Established in 1965 as the Population Crisis Committee, PAI (formerly Population Action International) also currently focuses on SRHR (see <https://pai.org/>). The Commonwealth Medical Trust (Commat), established in 1995 to promote health, especially reproductive health and the advancement of human rights and medical ethics in Commonwealth and other less developed countries, also runs NGOs Beyond 2014 (see <http://ngosbeyond2014.org/>). This resource is for organizations trying to ensure that reproductive health and rights, including maternal health, and young people and gender issues are represented in global development frameworks and that NGOs are aware of relevant UN meetings and opportunities for input.

A myriad of NGOs, funded by a mix of public and private money, have provided family planning services in various countries, including as part of SRHR following ICPD. Among the earliest of these NGOs is the International Planned Parenthood Federation (IPPF), which was founded by eight national family planning associations in 1952 in London, the same year India adopted its first national population policy (May, 2012). The IPPF currently has member-associations in more than 140 countries. MSI Reproductive Choices, founded in 1976 and named Marie Stopes International until November 2020, provides contraception and safe abortion services in 37 countries around the world. However, funding for these NGOs and others has been caught up in political swings, particularly in the U.S. Other NGOs have undertaken research and advocacy, among other activities. These include scientific organizations, professional networks, and women’s and reproductive justice coalitions.

Among the professional associations that deal with demography and population-related issues, the International Union for the Scientific Study of

Population (IUSSP) stands out as the leading international group of professionals interested in population studies. Originally founded in 1928, and reconstituted in 1947, the IUSSP is currently housed in Paris and has more than 2000 members around the world. It carries out research on population themes and convenes major scientific conferences every four years (see [www.iussp.org](http://www.iussp.org)). The Population Association of America (PAA), the other main professional organization in the field with more than 3000 members, was created in 1931. It is a “*nonprofit, scientific, professional organization established to promote the improvement, advancement and progress of the human race through research of problems related to human population*” (see [www.popassoc.org](http://www.popassoc.org)). PAA members include demographers, sociologists, economists, public health professionals, and other individuals interested in research and education in the population field. A number of other international and regional population research organizations have also been created, often on the model of these two prominent professional associations, including the Union of African Population Studies (see <https://uaps-uepa.org/>), the Asian Population Association (see <https://www.asianpa.org/>), and the Asociación Latinoamericana de Población (see <http://www.alapop.org/alap/>), along with many national population associations. In addition, International Family Planning Conferences have been held mostly biannually since 2009.

Independent research organizations, as well as public and private universities, have often played a key role in the dissemination of evidence and ideas regarding the causes and consequences of population trends, issues in reproductive health and, more recently, HIV/AIDS. The Population Council is one such organization, founded in New York in 1952 by John D. Rockefeller III. It is an international, nonprofit, and non-governmental organization that carries out research on global population issues, including contraceptive development (Bunting & Sitruk-Ware, 2021). The Council is a strong voice in the community of population and reproductive health scientists as well as in policy implementation and evaluation. The Population Council was

instrumental in developing and popularizing a framework for quality of care (Bruce, 1990; Jain & Hardee, 2018), in addition to maintaining a strong focus on meeting the needs of adolescent girls. The Population Council publishes two flagship scholarly journals, *Population Development Review* and *Studies in Family Planning* (see [www.popcouncil.org](http://www.popcouncil.org)). The Guttmacher Institute, established in 1968 to focus on family planning, promotes evidence-informed SRHR policies and programs in the U.S. and globally (see <https://www.guttmacher.org/>). In addition to a range of research topics, Guttmacher is known for its ongoing publication *Adding It Up*, which estimates the need for, impact of, and costs associated with providing essential sexual and reproductive health services (see <https://www.guttmacher.org/adding-it-up>). Guttmacher also co-leads the Guttmacher-Lancet Commission on Sexual and Reproductive Health and Rights, comprising 16 experts from around the world, with multi-disciplinary experience in a broad range of SRHR issues and culminating in a report in *The Lancet* (Starrs et al., 2018).

Specialized scientific networks have also helped disseminate ideas and promote population paradigms. An example is the International Federation of Gynecology and Obstetrics (FIGO), the only worldwide organization that assembles gynecologists and obstetricians. FIGO's mission is to promote the well-being of women and to raise the standard of practice in obstetrics and gynecology (see [www.figo.org](http://www.figo.org)).

Some institutions have directed their efforts toward population education. The Population Reference Bureau (PRB), founded in 1929 as a private, scientific, and educational organization, provides researchers, journalists, policymakers, educators, and the public with the resources necessary to make informed policy decisions on population issues. PRB publishes annually the well-regarded *World Population Data Sheet*, which offers updated demographic data for all countries and territories around the world (see [www.prb.org](http://www.prb.org)) as well as other specialized topical data collations (e.g., on young people). The Population Media Center, which focuses on

entertainment for social behavior change, works “at the interconnected areas of women’s rights, population and environmental protection” (see <https://www.populationmedia.org/>).

### **Intergovernmental, Parliamentary, and Issue-Focused Coalitions and Groups**

Several inter-governmental organizations and parliamentary groups have also been created to address population and related issues. Partners in Population and Development (PPD) was created by ten countries from Asia, Africa, and Latin America as an intergovernmental initiative at ICPD to expand and strengthen South-to-South collaboration on reproductive health, population, and development and implementation of the ICPD PoA (see <https://www.partners-popdev.org/>). Parliamentary groups for population and development promote attention to these issues in parliamentary debate and policy making (see <https://www.ipu.org/> and <https://afppd.net/>). PPD Africa Region Office (PPD ARO) works with the Network of African Parliamentary Committees of Health (NEAPACOH) on ICPD and sexual and reproductive health needs.

In addition, various coalitions and working groups have been formed to address specific issues. For example, the Reproductive Health Supplies Coalition (RHSC) (see <https://www.rhsupplies.org/>) was formed in 2004 following a conference in Istanbul in 2001 to address contraceptive shortages (see [https://www.rhsupplies.org/uploads/tx\\_rhscpublications/Meeting\\_the\\_Challenge\\_IstanbulMtgReport.pdf](https://www.rhsupplies.org/uploads/tx_rhscpublications/Meeting_the_Challenge_IstanbulMtgReport.pdf)). RHSC is a partnership comprising public, private, and non-governmental organizations working to ensure access to affordable, high-quality reproductive health supplies. As another example, to meet the reproductive health needs of women in crisis settings (e.g. in refugee camps), the Inter-agency Working Group on Reproductive Health in Crises (IAWG), hosted by the Women’s Refugee Commission, is a coalition of organizations



and individuals working together to ensure reproductive health and rights in settings of humanitarian crisis (see <https://iawg.net/>).

The proliferation of actors seeking to shape population policies, while a positive development for ensuring inclusion and amplifying diverse voices, has posed challenges for coordination and, as critically, for decisions on resource allocation, because different issues have varying priority for different constituencies. Under normal circumstances this would be a significant challenge. In the midst of the global COVID-19 pandemic, it is even more daunting.

We should note that while the bulk of global and national attention up through 2000 focused on problems of reproductive health and family planning in high-mortality, high-fertility societies, the recent shift to rapid aging in East Asia and the West has produced a fresh wave of international conferences and institution-building to study and develop policies to respond to global aging. These include the International Summits on Aging and Gerontology (begun in 2010) and the Global Congress on Aging and Gerontology (fifth meeting in 2022 in Dubai), which followed on the UN's World Assembly on Aging (the first of which was held in 1982, but the second only in 2002). Important NGOs include the International Federation on Aging and the International Council on Active Aging. National governments are also creating institutions devoted to population aging, such as the National Institute on Aging in the U.S. (founded in 1974 within the National Institutes of Health).

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## Conclusion

As noted in the Nairobi Statement on ICPD at 25, “(o)ur world has, in many ways, profoundly changed over the past 25 years, and many new issues are influencing the field of population and development” (<https://www.nairobisummiticpd.org/content/icpd25-commitments>). While ICPD continues to be reaffirmed, emphasis has shifted from sectoral agreements to global development goals, including ensuring SRHR in universal health coverage. Global agreements have been

accompanied by the making and monitoring of public commitments for accountability for action. There is greater emphasis on human rights and use of human rights review approaches; and heightened concern with equity (*Leaving No One Behind*). Renewed attention to demographic dynamics includes a focus on both high and low fertility societies. Greater efforts are underway to produce broad sectoral and inter-sectoral databases reflecting heightened demand for data and evidence-based decisions. Countries continue with decentralization and donors are increasingly turning their investments to local institutions and groups. The current period is also marked by growing attention to humanitarian settings, pandemic disruptions, climate change and the links between it and population and SRHR, and renewed sensitivity to the term “population” amidst demands for the decolonization of development assistance.

The relationships between population and socioeconomic development are complex and impact multiple actors, social groups, and sectors of society. Consequently, population conferences, and the institutions established to deal with their recommendations, have had to address health, nutrition, education, labor force, women's status, gender issues, urbanization, environment, and legal reform. The recommendations made to national governments, as well as to international and regional organizations, have reflected shifting compromises, and an agenda that has expanded from fertility control to all aspects of socioeconomic development, including achieving a balance between population growth and available resources, and (since the 1994 ICPD) sexual and reproductive health and reproductive rights. An insistence on evidence-based policies has meant growing efforts to build technical expertise in population and data gathering efforts, to be supplied through multilateral assistance, bilateral contributions, and South-South cooperation.

The major population conferences not only debated population issues; they provided a forum for a vast expansion of the role of NGOs and CSOs, wresting control of population and development policy away from central governments and international experts, and

demanding attention to local and community interests. At the same time, the conferences enhanced the convergence of opinions, which was to a large extent achieved in Cairo, despite some tough discussions. Therefore, the conferences helped to spread international population paradigms, contributed to the globalization of the population discourse, and facilitated a collective learning process. Consequently, the perception of population problems was no longer national but became gradually transnational, as did the transmission of experience in population programs (United Nations, 1990). Coverage of the population conferences by international and national media helped to popularize population concerns among a wide public audience.

Today, however, the institutions managing population policy are underfunded and the prospects for another major international conference on population policy are dim. Two global pandemics, HIV/AIDS and COVID-19, drew public health resources to ongoing crises rather than long-term planning. Yet there is a continuing unmet need for family planning, as fertility remains quite high in dozens of countries, even as much of the world starts to shift its population concerns to issues of aging and population decline. In addition, ever-larger numbers of people are living in emergency situations, whether as refugees, migrants, internally displaced, or in conflict-affected areas, who also have unmet needs for reproductive health services. Resources available for SRHR, including family planning, and population and development data and research, remain insufficient.

Institutions addressing population issues are in flux. Several foundations have suspended or de-prioritized their population portfolios. The Bill & Melinda Gates Foundation, the largest private sector contributor to family planning and one of the largest of any such institutions, may undergo changes as that foundation undergoes its own transformation. Several large bilateral donor institutions have also been reorganizing and are working towards new modalities for assistance. This will likely take some time to be resolved.

Civil society organizations with extended histories are suspending operations or merging into new organizations, in part driven by funding challenges and in part by increased local participation and responsibility. Increased reliance on nationally and community-based organizations and networks is distributing decision making more broadly.

Still, with all the flux, ICPD remains the bedrock of international population policies and interventions. Arguments that needed to be resolved to attain its many compromises on key issues concerning adolescent rights and agency, safe abortion services, national sovereignty, and population's role in development remain in force despite continuing contention. The Programme of Action's inspirational reach reflects its breadth of vision and range of sectoral interests. In its way, ICPD was a precursor of the MDGs and SDGs. ICPD remains relevant to governments in their policy formulation processes and the PoA broad enough to address current challenges. It has also generated enthusiasm among youth organizations, promising continuing attention to population and development issues.

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## References

- Allman, J., Rohde, J., & Wray, J. (1987). Integration and disintegration: The case of family planning in Haiti. *Health Policy and Planning*, 2(3), 236–244.
- Barragués Fernández, A. (2020). Accountability for sexual and reproductive health and rights in development practice: Building synergies. *Sexual and Reproductive Health Matters*, 28(1), 1848399.
- Bernstein, S., & Hansen, C. J. (2006). *Public decisions, private choices: Sexual and reproductive health and the MDGs*. The Millennium Project.
- Bissell, S., Sines, E., Chowdhury, D. N., et al. (2021). From population control to reproductive health and rights: A donor's journey. *Sexual and Reproductive Health Matters*, 29(1), 1952524.
- Blas, E., & Kurup, A. S. (Eds.). (2010). *Equity, social determinants and public health programmes*. World Health Organization.
- Bongaarts, J., & O'Neill, B. C. (2018). Global warming policy: Is population left out in the cold? *Science*, 361(6403), 650–652.
- Brown, G. F. (2007). Tunisia: The debut of family planning. In W. C. Robinson & J. A. Ross (Eds.),

- The global family planning revolution: Three decades of population policies and programs* (pp. 59–69). World Bank Group.
- Bruce, J. (1990). Fundamental elements of the quality of care: A simple framework. *Studies in Family Planning*, 21(2), 61–91.
- Bunting, J., & Sitruk-Ware, R. (2021). Harnessing the power of partnership to advance reproductive health and rights. *Acta Obstetrica et Gynecologica Scandinavica*, 100, 564–565.
- Caldwell, J. C. (2003). Population organizations. Professional associations. In P. Demeny & G. McNicoll (Eds.), *The encyclopedia of population* (Vol. 2, pp. 742–744). Macmillan Reference USA.
- Chamie, J. (2003). Population organizations. United Nations system. In P. Demeny & G. McNicoll (Eds.), *The encyclopedia of population* (Vol. 2, pp. 749–752). Macmillan Reference USA.
- Chasteland, J. C. (2002). De 1950 à 2000: La communauté internationale face au problème de la croissance de la population mondiale. In J. C. Chasteland & J. C. Chesnais (Eds.), *La population du monde: Géants démographiques et défis internationaux* (2nd ed., pp. 717–753). Institut national d'études démographiques.
- Chasteland, J. C. (2006). World population growth and the international community from 1950 to the present day. In G. Caselli, J. Vallin, & G. Wunsch (Eds.), *Demography: Analysis and synthesis. A treatise in population studies* (Vol. IV, pp. 457–486). Academic Press/Elsevier.
- Cleland, J. (this volume). Chapter 27: The contraceptive revolution. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Cleland, J., Bernstein, S., Ezeh, A., et al. (2006). Family planning: The unfinished agenda. *The Lancet*, 368(9549), 1810–1827.
- Cohen, S., & Richards, C. (1994). The Cairo consensus: Population, development and women. *Family Planning Perspectives*, 26(6), 272–277.
- Congressional Research Service. (2020). *U.S. bilateral international family planning and reproductive health programs: Background and selected issues*. CRS.
- Crane, B., & Maistrellis, E. A. (this volume). Chapter 28: The role of abortion in population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Crossette, B. (2004). *Reproductive health and the millennium develop goals: The missing link* (Report for the Population Program of the William and Flora Hewlett Foundation). Hewlett Foundation.
- DeJong, J. (2000). The role and limitations of the Cairo international conference on population and development. *Social Science & Medicine*, 51(6), 941–953.
- Dutta, A., Ward, K., & Sharma, S. (this volume). Chapter 23: Funding of population policies and programs. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- El Kak, F. (2020). The integration of sexual and reproductive health and rights into universal health coverage: A FIGO perspective. *Sexual and Reproductive Health Matters*, 28(1), 1829796. <https://doi.org/10.1080/26410397.2020.1829796>
- Filmer-Wilson, E., & Mora, L. (2018). Chapter 12: The United Nations Population Fund. An evolving human rights mission and approach to sexual and reproductive health and reproductive rights. In B. M. Meier & L. O. Gostin (Eds.), *Human rights in global health: Rights-based governance for a globalizing world*. Oxford Scholarship Online.
- Finkle, J. L., & Crane, B. B. (1975). The politics of Bucharest: Population, development and the new international economic order. *Population and Development Review*, 1(1), 87–114.
- Finkle, J. L., & Crane, B. B. (1985). Ideology and politics at Mexico City: The United States at the 1984 international conference on population. *Population and Development Review*, 11(1), 1–28.
- Finkle, J. L., & McIntosh, C. A. (2002). United Nations population conferences: Shaping the policy agenda for the twenty-first century. *Studies in Family Planning*, 33(1), 11–23.
- Gilby, L., Koivusalo, M., & Atkins, S. (2021). Global health without sexual and reproductive health and rights? Analysis of United Nations documents and country statements, 2014–2019. *BMJ Global Health*, 6, e004659. <https://doi.org/10.1136/bmjgh-2020-004659>
- Goldstone, J. A., & May, J. F. (this volume). Chapter 1: Contemporary population issues. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Guzman, J. M. (this volume). Chapter 10: Population policies in Latin America and the Caribbean: From Carmen Miró to the Montevideo Consensus. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Haaga, J. (2003). Population organizations. Research institutions. In P. Demeny & G. McNicoll (Eds.), *The encyclopedia of population* (Vol. 2, pp. 744–748). Macmillan Reference USA.
- Hadi, M. (2017). Historical development of the global political agenda around sexual and reproductive health and rights: A literature review. *Sexual and Reproductive Healthcare*, 12, 64–69.
- Hendrixson, A., et al. (2018). Confronting populationism: Feminist challenges to population control in an era of climate change. *Gender, Culture and Change*, 27(3), 307–315.
- Hodgson, D., & Watkins, S. C. (1997). Feminists and neo-Malthusians: Past and present alliances. *Population and Development Review*, 23(3), 469–523.
- Hulme, D., & Scott, J. (2010). *The political economy of the MDGs: Retrospect and prospect for the world's*

- biggest promise* (BWPI Working Paper 110). Brooks World Poverty Institute.
- Jain, A., & Hardee, K. (2018). Revising the FP quality of care framework in the context of rights-based family planning. *Studies in Family Planning*, 49(2), 171–179.
- Kaiser Family Foundation. (2021). *The U.S. government and international family planning & reproductive health efforts*. Global health policy. KFF.
- Klingman, G. (1998). *The politics of duplicity: Controlling reproduction in Ceausescu's Romania*. University of California Press.
- Lasher, C. (1998). U.S. population policy since the Cairo conference. *Environmental Change and Security Project Report*, 4(Spring), 16–23.
- MacDonald, A. L. (2003). Population organizations. National and international agencies. In P. Demeny & G. McNicoll (Eds.), *The encyclopedia of population* (Vol. 2, pp. 739–742). Macmillan Reference USA.
- Malarcher, S., Olson, L. G., & Hearst, N. (2010). Chapter 10: The social context of contraceptive use. 10: unintended pregnancy and pregnancy outcomes equity and social determinants. In E. Blas & A. S. Kurup (Eds.), *Equity, social determinants and public health programmes* (pp. 177–185). World Health Organization.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- May, J. F. (2018). A demographer in the Africa region, 1997–2012. *The 1818 Society Bulletin*, 3(38), 31–33.
- May, J. F. (2019). Chapter 34: Population policy. In D. L. Poston Jr. (Ed.), *Handbook of population* (2nd ed., pp. 875–899). Springer.
- McIntosh, C. A., & Finkle, J. L. (1995). The Cairo conference on population and development: A new paradigm? *Population and Development Review*, 21(2), 223–260.
- McIntosh, C. A., & Finkle, J. L. (2003). International population conferences. In P. Demeny & G. McNicoll (Eds.), *The encyclopedia of population* (Vol. 1, pp. 168–170). Macmillan Reference USA.
- Measham, A. R., & Lopez-Escobar, G. (2007). Against the odds: Columbia's role in the family planning revolution. In W. C. Robinson & J. A. Ross (Eds.), *The global family planning revolution: Three decades of population policies and programs* (pp. 121–135). World Bank Group.
- Notestein, F. W. (1954). World population conference Rome, August 31–September 10. *Population Index*, 20(4), 241–248.
- O'Neill, B. C., Dalton, M., Fuchs, R., et al. (2010). Global demographic trends and future carbon emissions. *Proceedings of the National Academy of Sciences*, 107(41), 17521–17526.
- Patterson, K. P., Jameel, Y., Mehra, M., et al. (2021). *Girls' education and family planning: Essential components of climate adaptation and resilience* (Project Drawdown Policy Brief). Project Drawdown.
- Pritchett, L. H. (1994). Desired fertility and the impact of population policies. *Population and Development Review*, 20(1), 1–55.
- Rotenberg, S. (this volume). Chapter 31: Priority groups in population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Sai, F. (1997). The ICPD programme of action: Pious hope or a workable guide? *Health Transition Review*, 7(Suppl. 4), 1–5.
- Sinding, S. (2016). Reflections on the changing nature of the population movement. *Journal of Population and Sustainability*, 1(1), 7–14.
- Singh, S. J. (2009). *Creating a new consensus on population: The politics of reproductive health, reproductive rights and women's empowerment* (2nd ed.). Earthscan.
- Speidel, J. J., Sinding, S. W., Gillespie, D., Maguire, E. S., & Neuse, M. (2009). *Making the case for U.-S. international family planning assistance*. United States Agency for International Development.
- Starrs, A. M., Ezeh, A. C., Barker, G., et al. (2018). Accelerate progress – sexual and reproductive health and rights for all: Report of the Guttmacher–Lancet Commission. *The Lancet*, 391(10140), 2642–2692.
- Symonds, R., & Carder, M. (1973). *The United Nations and the population question, 1945–1970*. McGraw Hill Book Company.
- Tarsilla, M. (this volume). Chapter 24: Measuring the effectiveness, efficiency, and impact of population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Turbat, V. (this volume). Chapter 19: Policies needed to capture demographic dividends. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- U.S. National Academy of Sciences. (1986). *Population growth and economic development: Policy questions* (Report of the Working Group on Population Growth and Economic Development, National Research Council). National Academy Press.
- UNFPA. (2015). *Realizing the faith dividend*. United Nations Population Fund.
- UNFPA. (2019). *A guide in support of national human rights institutions country assessments and national inquiries on human rights in the context of sexual and reproductive health and well-being*. United Nations Population Fund.
- UNFPA. (2021). *Welcome to the UNFPA supplies partnership 2021–2030*. United Nations Population Fund.
- UNFPA. (n.d.-a). *Lessons from the first cycle of the universal periodic review*. United Nations Population Fund.
- UNFPA. (n.d.-b). *Lessons from the second cycle of the universal periodic review*. United Nations Population Fund.

- UNFPA & What Works Association. (2020). *Strengthening the human rights-based approach to family planning at UNFPA: An assessment*. United Nations Population Fund & What Works Association (WWA).
- UNFPA & What Works Association. (2021). *Programme assessment tool for a human rights-based approach to voluntary family planning*. United Nations Population Fund & What Works Association (WWA).
- UNFPA & WHO. (2015). *Ensuring human rights within contraceptive service delivery: Implementation guide*. United Nations Population Fund & World Health Organization.
- United Nations. (1966a). *International covenant on economic, social and cultural rights* (December 1966. United Nations. Treaty Series) (Vol. 993). United Nations General Assembly.
- United Nations. (1966b). *International covenant on civil and political rights* (December 1966. United Nations. Treaty Series) (Vol. 999). United Nations General Assembly.
- United Nations. (1968). *Final act of the international conference on human rights* (Teheran. April 22–May 13, 1968). United Nations.
- United Nations. (1975). *Report of the United Nations world population conference, Bucharest 19–30 August 1974*. United Nations, Department of Economic and Social affairs.
- United Nations. (1984). *Report on the international conference on population, Mexico, August 6–14, 1984*. United Nations, Department of Economic and Social affairs.
- United Nations. (1990). *Proceedings of the expert group meeting on the international transmission of population policy experience, New York, June 27–30, 1988*. United Nations, Department of Economic and Social affairs.
- United Nations. (1995). *Report on international conference on population and development, Cairo, September 5–13, 1994*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2018). *World population policies 2015*. United Nations, Department of Economic and Social affairs, Population Division.
- United Nations. (2021). *UNFPA strategic plan 2022–2025* (DP/FPA/2021/8). Executive Board of the United Nations Development Programme, United Nations Population Fund, & United Nations Office for Project Services.
- United Nations CESCR. (2016). *General comment no. 22 (2016) on the right to sexual and reproductive health (article 12 of the international covenant on economic, social and cultural rights)* (E/C.12/GC/22). United Nations Human Rights, Office of the High Commissioner, Committee on Economic, Social and Cultural Rights.
- United Nations High Commissioner for Refugees. (2005). *UNHCR note on refugee claims based on coercive family planning laws or policies*. UNHCR.
- USAID. (2021a). *Fact sheet: Population, environment and development (PED) integration and USAID*. U.S. Agency for International Development. <https://www.usaid.gov/global-health/health-areas/family-planning/resources/ped-fact-sheet>
- USAID. (2021b). *Fact sheet: Family planning and reproductive health overview*. U.S. Agency for International Development. <https://www.usaid.gov/global-health/health-areas/family-planning/resources/family-planning-overview>
- USAID. (n.d.). *USAID family planning program timeline: Before 1965 to the present*. U.S. Agency for International Development.
- Wilson Center. (2015). *Changing the world: How USAID's 50 years of family planning has transformed people, economies, and the planet*. Wilson Center. <https://www.wilsoncenter.org/event/changing-the-world-how-usaids-50-years-family-planning-has-transformed-people-economies-and>
- World Bank. (1984). *World development report 1984*. World Bank Group.
- World Bank & International Monetary Fund. (2016). *Global monitoring report 2015/2016: Development goals in an era of demographic change*. World Bank Group & International Monetary Fund.
- World Health Organization. (2014). *Ensuring human rights in the provision of contraceptive information and services*. World Health Organization.

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## Part III

# Policy Levers and Modelling



# Data Collection for Population Policies 16

Thomas Spoorenberg

## Introduction

Population policies can be defined as “*actions taken explicitly or implicitly by public authorities, in order to prevent, delay, or address imbalances between demographic changes, on the one hand, and social, economic, and political goals, on the other*” (May, 2012: 1–2).

Public authorities generally formulate and adopt population policies having in mind the general interest and well-being of society. The aim of population policies is to direct and shape some population-related issues through a set of proposed incentives, restrictions, or actions. While the population policy process can take different forms (for more details, see May, 2012: 41–66), one of the common steps in the design and development of policy initiatives is the mobilization and reliance on empirical information to assist their formulation, implementation, and assessment. Such an empirical basis is needed to take stock of a situation, formulate possible steps to address an issue, and finally monitor the progress, correct, and revise the initial policy if needed, and assess the achievements (or failures) of the policy put in place. Different information systems

collect the data required to measure the effectiveness and efficiency of population policies. Each data collection operation presents advantages and shortcomings that can affect the formulation, implementation, and assessment of population policies.

This chapter provides an overview of the main demographic data collection operations<sup>1</sup> available for population policies, and discusses the recent development of new data collection methods. For the sake of simplicity, data collection operations are treated in this chapter as distinct from population policies, though they are indeed part of the process and one of its very first steps.

## Main Data Collection Operations

Three main data collection operations are traditionally used to gather population and demographic information: the national census of population and housing, systems of civil registration and population registers, and sample surveys.

## Population and Housing Censuses

Population and housing censuses constitute one of the most basic data sources to assist the

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The views expressed in this chapter are those of the author and do not necessarily reflect the views of the United Nations.

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<sup>1</sup> See Tabutin, 1984 for a more exhaustive discussion of the main traditional data collection operations. A concise and more recent version is available in Tabutin, 2006.

formulation, implementation, and assessment of population policies. In its modern version, a census presents five essential features: individual enumeration, universality within a defined territory, simultaneity, defined periodicity, and small-area detailed statistics (United Nations Statistics Division, 2017). A census provides an exhaustive, detailed recording of the particulars of a population living in a given country *at a specific time*. It covers the entire national territory, reaches every single household, and collects information on all individuals in a short period of time. The national census is not just a headcount; it maps all households to their residence and identifies all individuals in the household by age, sex, and other characteristics of interest (though different countries collect different data; for example, some exclude race or religion). Population censuses are not perfect, however, and counting correctly some categories of a population (i.e., young children, homeless, and transient individuals, etc.) still remain challenging.

The census is one of the only data sources providing information at the lowest administrative level possible. In some countries (e.g., United States), census results are used to apportion legislative seats as well as funding from the central government. The adjusted (but sometimes unadjusted) census results are also used to revise official population figures and to project the population by age and sex for development planning purposes. It is therefore recommended to conduct a population census at least every ten years in order to update official population estimates and to provide as accurate as possible data for policymakers.

The conduct of a census is one of the most complex and massive exercises a nation can undertake. *“It requires mapping the entire country, mobilizing and training an army of enumerators, conducting a massive public campaign, canvassing all households, collecting individual information, compiling vast amounts of completed questionnaires and analysing and disseminating the data”* (United Nations Statistics Division, 2017: XV).

Traditionally, the population census gathered information through the administration of paper

questionnaires during in-person interviews. Census enumerators would visit each household and interview its members on a selected number of questions to collect information such as age and sex, relationship in the household, marital status, education level, employment, housing characteristics, number of births/deaths in the household in the last twelve months, number of children ever born and surviving,<sup>2</sup> etc. The number and focus of the questions included in a census questionnaire is usually determined based on national priorities and can differ by country, as well as from one census to another in the same country.

In some population censuses, two separate types of census form are used. A short form serves to collect basic information from every household, whereas a long form is administered only to a randomly selected sample of the households in order to collect more detailed information on particular topics. Both forms are administered at the same time during the census data collection. The data collected from the long form, while covering only a sample of the population, are considered and treated as census results for the whole population. The use of two census forms, with most households getting only the short form, reduces the burden on census enumerators, as well as on household members, and provides higher response rates and better data quality.

More recently, with the advances in technology, hand-held electronic devices or even the administration of census questionnaires through the Internet have progressively replaced paper questionnaires. These advances have reduced drastically the time required to process and release the census data. Where the full exploitation and processing of the paper-based census data would require several years to be completed and released, census data collected by hand-held electronic devices or through the Internet are

<sup>2</sup> In the less developed countries, “indirect questions” have often been added to census questionnaires in order to obtain estimations of mortality, fertility, and, occasionally, migration. Such information is analyzed with so-called indirect estimation techniques.



available in much shorter time, oftentimes within a year or so.

A series of international principles and recommendations on population and housing censuses have been developed since the late 1950s in order to support national census operations (United Nations Statistics Division, 2017). These documents have evolved through time, adapting to national and international agendas, as well as technological changes. They cover the main characteristics of population and housing censuses, provide general information on census operations and methods, and offer more detailed provisions on the census contents, such as a series of core and optional topics suggested for inclusion in census questionnaires (United Nations Statistics Division, 2017). The latest revision of the principles and recommendations on population and housing censuses includes the following four parts: (1) Essential features and census methodology; (2) Planning, organization, and management; (3) Carrying out census activities; and (4) Population and housing census topics.

Most countries of the world have conducted at least one population census. However, the latest census data available may date back a decade or more. At the global level, for a fifth (48) of the 235 countries in the world the most recent population count data available is over ten years old. For nine of these countries, the most recent available census data are from before the year 2000.<sup>3</sup>

Such figures do not mean that in the remaining 80% of countries the data are not problematic and population policies can rely on adequate data. Many available censuses present serious deficiencies that can affect the formulation of population policies. Despite international principles and recommendations, population censuses are still too rarely followed by a post-enumeration survey (PES).<sup>4</sup> In cases when a PES

has been conducted, the results are rarely made available or accounted for in an appropriate manner to adjust the census results. Almost all population censuses suffer also from patterns of under-enumeration. In some countries, up to 20% of young children can be missing from the census counts. Young adults, mostly male, are also not properly enumerated, due to their higher mobility. Such patterns are found both in statistically developed and statistically less developed countries. Population censuses can also sometimes not cover the entire national territory and some areas are left out of the census operations for various reasons. Before census data can be used to properly inform or assess population policies, such limitations need to be properly accounted for. Failure to adjust census data for coverage or for under-enumeration would mislead any population policy initiative.

Census data are usually used to update existing official population estimates by projecting from the population enumerated during a census by accounting for the population changes between the year of the census and the year for which the official population estimate refers. Beside adjusting the census data properly for patterns of under-enumeration and coverage, it is also important to use a suitable method to make projections from the population data obtained in the census. The gold standard approach is to use the cohort component method to account for the changes in deaths, births, and migrations by age and sex and produce population estimates that are consistent along cohorts. Depending on national circumstances, however, the data that are required to bring up to date the census population are sometimes not available or, when available, not accounted for in revising official population estimates.<sup>5</sup> In the absence of a new population census, there is a risk that population policies will

<sup>3</sup> These countries (with the date of their last census) are: Lebanon (1932), Afghanistan (1979), the Democratic Republic of the Congo (1984), Eritrea (1984), Somalia (1987), Uzbekistan (1989), Madagascar (1993), Iraq (1997), and Turkmenistan (1995) (United Nations Population Division, 2019: 3). To note, Turkmenistan conducted a population census in 2012, but data are yet to be released.

<sup>4</sup> A PES is a sample survey asking the same questions as the census, but administered to a select random sample (often stratified) of the population. The results are used to check the patterns in the full census data, to identify any anomalies or errors in the census data tabulation and analysis.

<sup>5</sup> For further details on these points, see Spoorenberg, 2020.

be forced to rely on hypothetical demographic data that can be highly inaccurate.

The case of Myanmar serves here as a recent example. Until the most recent population census conducted in 2014, official population estimates were based on population projections that used the 1983 population and housing census count as the base-year population, and projected forward using a set of untested fertility and mortality assumptions (international migration was assumed to be zero). As a result, the country's official population statistics had estimated the population of the country to be more than 61 million in 2012. However, these official population figures were based on flawed population projections that were not accounting properly for the decline in fertility in the country (which was documented by successive demographic and health sample surveys), nor for the substantial emigration to neighboring countries that had occurred. In 2014, a new census was finally conducted and indicated a population about 15% lower – almost ten million fewer people! – than the official population figures (Spoorenberg, 2013, 2015), forcing Myanmar to revise many national, regional, and local policies and development planning initiatives.

To respect the principle of confidentiality,<sup>6</sup> population and housing census data have long remained the property of national statistical institutions. Census tabulations are usually released for national and various sub-national levels only, in order to prevent the possible identification of individuals. However, while laudable, such practice has restricted studies to focus on the aggregated level. Initiatives such as IPUMS-International have opened new avenues by distributing anonymized micro-level census data samples for close to 100 countries. More

nuanced studies can be conducted using these micro samples, allowing also the integration of spatial approaches to demographic analysis.

One of the main advantages of population censuses is the provision of detailed small-area statistics that allow researchers and policymakers to identify areas, communities, and/or individuals whose living conditions, access to services and infrastructures, and basic rights need to be improved. Such statistics are of prime interest for population policies.

While some questions on vital statistics (i.e., the components of population change: births, deaths, and migration) are recommended to be included in a census, the measure of the population dynamics is not the first objective of a population census. Civil registration systems and population registers are better fit for this purpose.

### Civil Registration Systems and Population Registers

Civil registration data are often a by-product of the administrative and legal systems of a country. The collection of information on vital events taking place in the life of a person, such as birth and death, as well as changes in family and civil status, provides important knowledge on the changing size and characteristics of a country's population.

The analysis of vital statistics can help in the formulation of population policies and their evaluation. Vital statistics are instrumental in preparing and revising accurate population estimates and projections. These statistics are also influential for the study of fertility and nuptiality, as well as mortality and the construction of life tables. While vital statistics can be collected through specific retrospective questions on fertility and mortality in population censuses, the preferred source is a civil registration system.

Starting in the late eighteenth century, many European nations started to put in place 'modern' systems intended to register vital events, in which professionals and institutions (e.g., hospitals) were required to report vital events to local governments or national agencies. Such systems

<sup>6</sup> Confidentiality is one of the ten fundamental principles of official statistics, requiring statistical agencies that "*Individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes*"; see [https://unstats.un.org/unsd/dnss/hb/E-fundamental%20principles\\_A4-WEB.pdf](https://unstats.un.org/unsd/dnss/hb/E-fundamental%20principles_A4-WEB.pdf), accessed on June 30, 2020.

**Table 16.1** Percentage of the population by region covered by complete birth and death registration

Region	Percentage of the population by region covered by complete birth and death registration (90% and above)	
	Birth	Death
Africa	18	8
Asia	51	12
Europe	100	100
Latin America and the Caribbean	74	74
Northern America	100	100
Oceania	76	74
WORLD	54	29

*Source:* Computed based on coverage data available in United Nations Demographic Yearbook and total population estimated from the United Nations Population Division

*Note:* A coverage of 90% or above of births or deaths is considered as complete. The regional and global percentages were computed as the weighted average of the national coverage completeness and the total population in 2020

created official state records of births, deaths, and marriages, events that previously had been recorded mainly by local parishes.<sup>7</sup>

Recently, as with censuses, the United Nations has made available key information on standard principles and recommendations for civil registration systems and the collection and management of vital statistics (United Nations Statistics Division, 2014, 2018). If well-functioning and complete, a civil registration system can provide vital statistics in an accurate, complete, timely, and continuous manner. The civil registration system is the only information system that can provide annual *flow* statistics for demographic variables, and do so from the smallest administrative level (United Nations Statistics Division, 2014).

At the international level, information on the coverage of birth and death registration is collected by the United Nations Statistics Division and is available in the United Nations Demographic Yearbook.<sup>8</sup> According to these data, a bit more than half (54%) of the world's population is covered by a complete registration of births, and less than a third (29%) of the world's population is covered by a complete registration

of deaths (see Table 16.1). At the regional level, the percentage of the population covered by complete registration of births or deaths varies significantly. In sub-Saharan Africa, less than a fifth of the population (18%) is covered by a complete birth registration, and only 8% is covered by a complete death registration. In Asia, a bit more than half of the population is covered by complete birth registration and only one out of eight persons (12%) is covered by a complete death registration. In Latin America and the Caribbean, as well as in Oceania, three-quarters of the population is covered by complete births and deaths registration. Finally, all the population living in Europe and Northern America is covered by a complete registration of births and deaths. These global and regional figures mask large heterogeneity at the country and sub-national level within some regions.

During the nineteenth century, some countries also started to put in place population registers in order to maintain a current population report, especially in regard to changes of residence. Population registers function as a book-keeping system where each person in the population has an individual record and where a new record is created with each birth and a record is removed following a death. Coupled with migration records (or estimates of in and out migration), population registers can provide the size of a population with relatively high accuracy and completeness at any point in time (Poulain & Herm, 2013).

<sup>7</sup> See van de Walle, 2018 for further details on the development of civil registration systems.

<sup>8</sup> For further details, see <https://unstats.un.org/unsd/demographic-social/crvs/index.cshml#coverage>, accessed on June 30, 2020.

*The individual records of a continuous population register thus follow each person from birth, through the major events in his/her life, such as marriage, divorce, and the birth of children, or changes of residence, until death. Addition of the number of live records, at convenient time intervals, results in a population count almost equivalent to a census; and if the register is well kept the population figures which it yields may be superior in quality to those obtained from the average census (United Nations, 1952: 42).*

To remain accurate, population registers need to be systematically checked and corrected either by population censuses at regular intervals, or by comparison with tax returns, electoral lists, school enrollment data, immunization records, insurance records, or any other independent system from which information on population count can be drawn. Regular checks assure that the population given by the register is not under- or over-estimated and provide accurate information on the population and its characteristics (for an example, see Monti et al., 2020). In statistically developed countries, traditional population and housing censuses have increasingly given way to population registers or a mixed approach based on the pairing of population registers (for population count) with other data sources such as insurance records, sample surveys, etc. (for population characteristics).

## Demographic Surveys/Sample Surveys

Besides population censuses, and civil registration and population register systems, sample surveys have been increasingly used since the 1950s in demography. Sample surveys are used both in statistically developed and less developed countries, but serve different purposes depending on the state and the quality of the other available data collection systems.

In statistically developed settings, the sample survey is usually employed to gather information on behavior, opinion, life course events, or specific topics concerning some portions of the population. In contrast, in statistically less developed settings, sample surveys are oftentimes used to provide information on the levels and trends of

mortality, fertility, or migration, as well as to provide additional data on households, women, and children in order to palliate the lack of information on many of these topics.

As indicated by its name, a sample survey is an operation that collects information on a (representative) sample of the population in a country (as opposed to a census, which is an exhaustive operation covering all the population). If all households or individuals (depending on the unit of observation of the survey) in a country or area have an equal probability of being included in the sample of the survey, then even a small sample of several thousand units can provide information and results that can be considered as representative for the entire population of the country or the area in question.

In countries with incomplete or without civil registration and population register systems, demographic surveys are used to derive estimates of mortality and fertility (and sometimes migration), as well as to provide information on a series of population characteristics (marital status, education, etc.), family planning, maternal and child health, gender, nutrition, HIV/AIDS incidence, etc. Several international survey programs have been conducted since the 1970s, seeking to do sample surveys in developing countries at least once every five years. Given the higher frequency of data collection, these survey programs offer the opportunity to assess changes through time in a series of demographic and social indicators. Based on information provided by sample survey programmes, demographers were able to document the slowdown in global population growth during the 1970s and have continued to gain information on the most recent demographic changes at work. It was also learned from new rounds of survey data around 2010 that many sub-Saharan African countries were experiencing slower declines in fertility than expected, implying therefore higher future population increases in that region (United Nations Population Division, 2013).

Other types of data collection also utilize carefully selected samples to gather valuable data for population policies. Two examples are the work of the Health and Demographic Surveillance Sites

(HDSS) to collect longitudinal data, and the use of Randomized Control Trials (RCTs) to evaluate policy interventions.

Starting in the 1960s, a series of Health and Demographic Surveillance Sites (HDSS) were progressively created in statistically less developed countries, mostly in sub-Saharan Africa (e.g., Navrongo, Ghana) and in South and South-Eastern Asia (e.g., Matlab, Bangladesh).<sup>9</sup> This data collection system consists of an initial full enumeration of the households in a selected area that is later updated at regular intervals through visits/interviews collecting health and demographic information for each household. Every birth, death, arrival or departure is therefore counted and can be followed through time. HDSS provide longitudinal data that complement the more traditional and periodic household sample surveys. The data collected in HDSS are not representative at the national or regional level, but specific to the selected surveillance sites. Nevertheless, HDSS data offer detailed information that can help in assessing the effect of specific events, policy interventions, or other factors on demographic behavior.

Randomized control trials (RCTs) are another set of data collection operations making use of samples. RCTs allow researchers to assess the effectiveness of a given intervention. Traditionally used in medicine, RCTs have also been resorted to answer important questions in other research areas. The method consists in randomly assigning subjects included in the trial to different groups that are treated differently and compared in respect of a specific outcome. The intervention is offered to only one group (i.e., the experimental group) and an alternative intervention or no intervention is applied to the other group (i.e., the control group). Such approach has been used for example to measure the effectiveness of programs seeking to reduce poverty, improve health, increase enrollments in schools, and enable access and use of contraception.

HDSS and RCTs do not provide representative data at the national or regional level. Yet, the specific information they give on changes over time in particular groups with known experiences gives very useful information to inform and understand better the mechanisms/factors behind demographic behaviors and/or the responsiveness of behaviors to specific targeted development interventions.

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## The Major Demographic Surveys (WFS, DHS, MICS)

Among various sample survey data collection initiatives, three major survey programmes have been critical to providing standardized, nationally representative, frequent, and detailed demographic and health information to inform, monitor, and assess population policies. These programmes are the World Fertility Survey (WFS) Program, the Demographic and Health Survey (DHS) Program, and the Multiple Indicator Cluster Surveys (MICS).

### Overview of Available Data

The World Fertility Survey (WFS) Program, established in 1972, was the first program to conduct standardized nationally representative sample surveys in many countries across the world, using identical questionnaires. The program pursued several objectives: to provide countries with accurate information on fertility and its determinants, as well as other population variables; to increase national capacity to conduct and analyse demographic surveys; and to provide data that are comparable and that could be used for international comparison. The surveys were generally carried out by national statistical offices with some international technical assistance and collected information both at the household and individual (women) level. Among many types of information, data on household characteristics (e.g., family composition, marital status, education, etc.), birth history, reproductive health, etc. were gathered. The WFS Program conducted

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<sup>9</sup> These sites differ by population size and time coverage. For more details on HDSS, see <http://www.indepth-network.org/member-centres>, accessed on September 10, 2020.

surveys from 1974 to 1983.<sup>10</sup> Information from around 350,000 women in 42 developing countries and 20 developed countries were collected—a sample representing about 40% of the world’s population at the time. The WFS program showed “*that complex surveys can be conducted successfully in nearly all countries of the world, if reasonable levels of financial and technical assistance are provided*” (Cleland, 1986: 2). The WFS program can be regarded as a large success and pioneered many instruments that are still currently in use in other survey initiatives.

The Demographic and Health Survey (DHS) Program benefited from, and carried forward, the lessons learnt from the WFS Program. Established in 1984, and mostly funded by the U.S. Agency for International Development, the DHS program has collected, analysed, and disseminated accurate and representative data on population, fertility, family planning, maternal and child health, gender, HIV/AIDS, malaria, and nutrition through more than 400 surveys in over 90 countries. As with the WFS program, the objective of the DHS program is twofold: (1) to collect nationally representative data to monitor and evaluate the effect of different initiatives on a series of population-related indicators; and (2) to provide comparable data allowing consistent international comparisons. DHS surveys use standard model questionnaires that were reviewed and modified in the successive phases of the DHS Program.<sup>11</sup> Before launching a new phase, the DHS Program regularly invites the community of population specialists, statisticians, and public health practitioners to submit proposals of new questions or modules for possible inclusion consideration in DHS questionnaires. In each phase, several DHS model questionnaires are used by countries, but topics of a particular interest can be added, while items no longer relevant can be deleted. DHS surveys consist of three core questionnaires: a household questionnaire, a women’s questionnaire, and a men’s questionnaire.

The most recent DHS surveys collect geo-referenced information on the surveyed households using Global Positioning System (GPS) receivers. However, to guarantee the confidentiality of the survey’s participants, the GPS coordinates are randomly displaced. The inclusion of geo-referenced information in DHS data collection allows researchers and governments to link DHS data with satellite imagery, and conduct other Geographic Information System (GIS) modelling, opening new avenues for research.

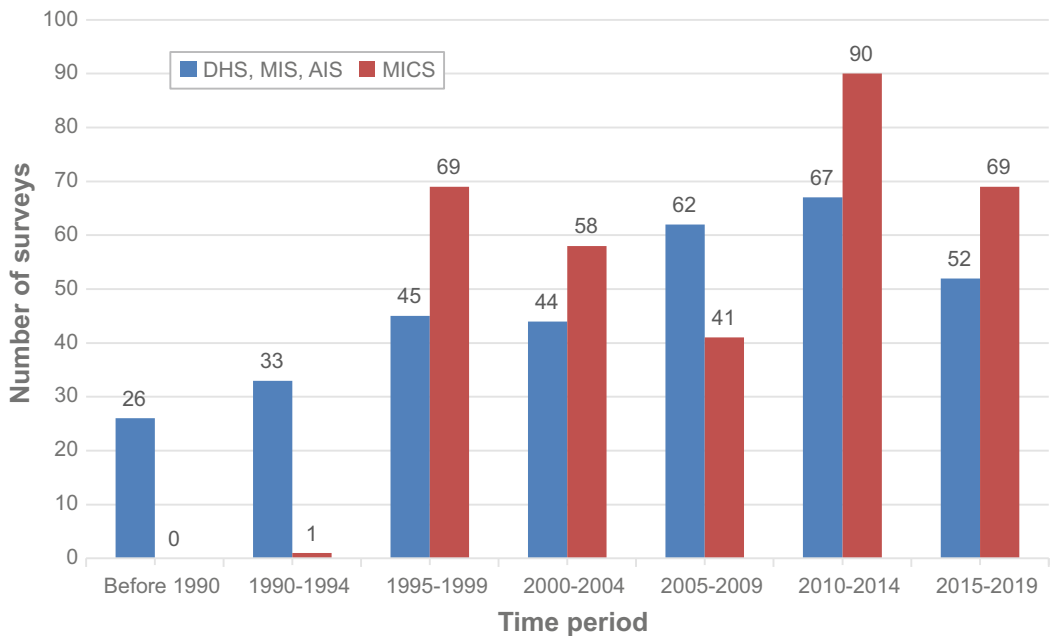
The DHS Program conducts standard demographic and health surveys, as well as other types of sample surveys, such as the Malaria Indicator Survey (MIS), the AIDS Indicator Survey (AIS), the Service Provision Assessment (SPA), and, in some countries, continuous demographic and health surveys (see Fig. 16.1). The standard DHS surveys gather information for a series of indicators in the areas of population, health, and nutrition. The MIS surveys focus on collecting information related to malaria, such as bed-net ownership and use, prevention of malaria during pregnancy, and treatment of fever in young children. The AIS surveys offer a standardized tool to collect data for the monitoring of HIV/AIDS programs. The SPA surveys collect information on the availability and use of health facilities and services. The continuous DHS surveys set up ongoing survey operations that collect and make available on an annual basis data that are nationally representative. A continuous DHS significantly reduces the costs of conducting a full national DHS survey from scratch every third, fourth, or fifth year (for further details on continuous DHS, see Rutstein & Way, 2014).

All types of DHS survey reports and data are publicly available through the Internet.<sup>12</sup> DHS data can be queried online through a website allowing users to create and export in different formats custom tables for thousands of demographic and health indicators by different characteristics, over time and across countries. Upon registration and approval, users can also access DHS micro datasets for more advanced

<sup>10</sup> WFS surveys are available at: <https://wfs.dhsprogram.com/>, accessed on June 10, 2020.

<sup>11</sup> Current and previous questionnaires are available at: <https://dhsprogram.com/publications/publication-search.cfm?type=35>, accessed on June 10, 2020.

<sup>12</sup> See <https://dhsprogram.com/>



**Fig. 16.1** Number of DHS and MICS surveys by time period

Sources: Author's computation based on information available on the Internet (DHS: <https://www.statcompiler.com>; MICS: <https://mics.unicef.org/surveys>)

Note: DHS: Demographic and Health Survey; MIS: Malaria Indicator Survey; AIS: AIDS Indicator Survey; MICS: Multiple Indicator Cluster Survey

For MICS, surveys that are in the design phase are not included

analysis by downloading available datasets in different formats. Access to some of these data is restricted, however, to maintain the confidentiality and anonymity of those surveyed. DHS data are widely used to inform countries on a series of demographic and health indicators, as well as being a key data source in many academic studies.

The Multiple Indicator Cluster Surveys (MICS) are surveys conducted by UNICEF.<sup>13</sup> Established in 1995, 343 MICS surveys have been conducted in 117 countries (as of mid-July 2020) (see Fig. 16.1). In line with UNICEF's mission to save children's lives, to defend their rights, and to help them fulfil their potential, MICS surveys focus on the well-being of children and women in order to help shape policies for the improvement of their lives. The MICS collects

data on a series of topics related to the lives of children and women through face-to-face interviews with household members. Notably, the MICS survey questionnaire includes questions on birth registration of children under age five.<sup>14</sup> The collection of this basic information is important, not only from a statistical point of view, but also from a legal one. Properly registering births guarantees that children are not left uncounted and invisible (UNICEF, 2013).

MICS data are internationally comparable. As in the case of the DHS Program, the survey questionnaires and the list of indicators covered

<sup>13</sup> See <https://mics.unicef.org/>

<sup>14</sup> In the MICS-6 round, three questions are used to collect information on birth registration: (1) "Does (name) have a birth certificate? If yes, ask: May I see it?"; (2) "Has (name)'s birth been registered with the civil authorities?"; (3) "Do you know how to register (name)'s birth?" This information is used to monitor and track achievement towards SDG Indicator 16.9.1.

have evolved since the first MICS survey round.<sup>15</sup> The MICS survey reports are also publicly available on the Internet. Access to MICS micro datasets is also possible upon request for legitimate research purposes.

Over the years, MICS and DHS programs have collaborated closely and worked together toward the harmonization and comparability of their survey tools, as much as possible. Yet, some differences remained, especially in terms of the population that is covered, and the reference period used to measure the coverage of different indicators. A comparison of the coverage of DHS and MICS survey programmes is available in Hancioglu and Arnold (2013).

For many countries, DHS and MICS surveys constitute a pillar of the national statistical system and provide data on women and children that would otherwise be lacking to inform and guide policy formulation and development planning.

### **Contributions and Limitations of Survey Data**

Undoubtedly, the different survey initiatives have offered key information on many population-related indicators. By collecting data only from a sample of the population, these surveys could be conducted at a higher frequency, allowing comparison through time and filling up the gaps in demographic knowledge between population censuses and/or in the absence of a functioning civil registration system or a population register. The standardized approach taken by these survey initiatives greatly facilitated international comparison and studies of changes in the levels and trends of a series of demographic and health indicators.

Among the advantages of sample surveys is their overall (lower) costs. Sample surveys are far less costly to conduct compared to a population and housing census or to develop and maintain a functioning civil registration system or

population register. The data collected by a sample survey is also generally of higher quality due to the smaller scale of the operation and the fewer number of required enumerators. The recruited enumerators can, in turn, be well trained and better monitored during the data collection phase. The questionnaires used in sample surveys are also much longer and include several modules that cover a wider number of topics and/or collect more exhaustive information on specific issues. From a demographic point of view, the collection of information on the full birth history in the women's questionnaires of sample surveys allows demographers to reconstruct levels and trends in fertility and mortality over several years, typically at least 15 years.

While more specific information can be collected by sample surveys, the use of longer questionnaires may also affect the quality of the information that is collected. Not all questions may be readily answered. Enumerators and/or survey participants may modify the information provided to avoid the administration of some survey modules. Such practice affects the series of indicators that are derived from sample surveys. An example that is observed in many DHS surveys is related to the collection of information on full birth history. Women are asked about all the births they have had (either still alive or not). For each child younger than five years old, a lengthy health module collecting information on child health and nutrition needs to be administered. Due to various factors (e.g., difficulty recalling the exact date of birth of a child, intentional or unintentional omission of some births, deliberate transfers of births out of the reference window for the administration of the child health module), which lead to an undercount of recent births, the use of the information on full birth history to compute the average number of births per woman (i.e., the total fertility rate) may result in an artificial decline in the levels of fertility that is estimated for the most recent five years before the survey date (Arnold, 1990; Potter, 1977; Pullum, 2006; Schoumaker, 2014). Another limitation of sample surveys is the possible errors related to the sample selection. In many statistically less developed countries, the

<sup>15</sup> For further information on MICS tools used in each round, see <https://mics.unicef.org/tools>, accessed on June 30, 2020.



appropriate sampling frame (usually a recent population and housing census) that is required to draw a representative sample for the survey is oftentimes outdated, incomplete, or not available. Even when a sampling frame is available, the sample that is drawn for inclusion in the survey can be biased (Hull & Hartanto, 2009; Spoorenberg, 2014). Moreover, results drawn from a sample survey are also affected by sampling errors that depend on the size of the sample selected. The smaller the size of the sample, the higher the sampling error, but a larger sample means higher operational costs and higher risks of errors in the data collected. This trade-off often leads to smaller samples being surveyed than would be ideal for minimizing sampling error. Results coming from a sample survey should therefore be used and interpreted with the appropriate confidence intervals computed based on sample size for the indicators of interest. Finally, sample surveys, depending on their size, can provide information that is representative only at the national, or at best for the first, or sometimes, second administrative/geographical level, thus limiting the use of their data for policy making and development planning at the local level.

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## New Data Collection Methods

Despite the benefits of each data collection method, some limitations persist in each of them. A population and housing census provides an exhaustive recording of the structure of a population to the smallest administrative unit, but its frequency is low. Given the complexity required to organize and conduct a population and housing census, it remains difficult for most countries in the world to conduct a census at intervals shorter than ten years. Also, population and housing censuses focus firstly on collecting current information on population characteristics and remain generally poorly equipped, despite the application of indirect techniques, to document changes over time in the levels and trends of demographic components, such as mortality and fertility.

In comparison, population registers and civil registration system are better suited to provide

data on population change. If well-functioning and regularly checked for completeness, these information systems can provide high quality demographic estimates and exhaustive population data at regular time intervals for the smallest administrative unit as well. The development, organization, and maintenance of such data collection systems are rather complex, however, and require long-term investments and commitments in terms of infrastructure and funding that are still difficult for most countries to operate and maintain.

Sample surveys offer an alternative way to collect population and demographic information at much lower costs compared to the organization of a population and housing census or the development of civil registration system or a population register. In addition, sample surveys have provided information on many topics that would otherwise remain mostly unaccounted for. Yet the use of a national sample prevents the possibility of drawing representative data for smaller localities. In order to address some of the limitations of each of these methods, to fill data gaps, and improve data availability and use, innovative data collection methods have been developed. Only two are briefly reviewed here.

## Hybrid Methodology for Population Estimates

The hybrid methodology for population estimates is an approach that combines several existing data collection methods to produce population estimates for small areas in settings where conducting a traditional population and housing census is not possible. The method can produce population estimates for specific areas for which data is missing or suspect from a traditional population and housing census, or for the entire country, if needed.

The method consists of multiple steps, starting with a micro-census population enumeration. Population data for a sample of given areas or for a country are first collected. These data can be drawn from an incomplete census, a large-scale population survey, or a micro-census survey

specifically designed for that purpose. Geo-referenced information of the enumerated areas is then required, in addition to as much information as possible on demographic, spatial, and environmental characteristics. The geo-referenced information can be acquired through GPS coordinates recorded during the enumeration process. Alternatively, GPS technology built into hand-held devices (i.e., smartphones or tablets) can be also employed to increase location precision. Statistical models are used in a final step to link the population data to the spatial characteristics in order to predict population estimates for the areas that have not been enumerated, based on a set of selected covariates (e.g., built-up areas, land use, counts of dwelling units, socioeconomic and other physical characteristics, etc.). In the past, the application of this method was limited by the availability of information on the covariates, but recent *“advances in image-processing techniques, computational power, and the increasing availability of very high-resolution satellite imagery means that the production of high-quality covariates for many settings is increasingly feasible”* (UNFPA, 2017: 5). The method produces high-resolution estimates for total population (“gridded” population) that can be used to fill gaps in a population and housing census, or be aggregated at the regional or national level in a bottom-up approach. Several gridded populations are available (Leyk et al., 2019; Thomson et al., 2019).<sup>16</sup>

Despite its advantages, however, the method cannot provide the range of information provided by a traditional population and housing census. The consistency of the estimates provided by the hybrid methodology depends ultimately on the depth and representativity of information available for the covariates, on the one hand, and on the calibration of the statistical model, on the other. If, for some reasons, a given region differs from the characteristics that have been selected

for inclusion in the model, the estimated figures for that specific region would be largely inconsistent with the reality. Yet, the method offers a welcome alternative approach to providing estimates of population counts in situations where such data are still lacking. Recent applications have been shown to produce consistent and credible population estimates in settings without recent and reliable census data (Wardrop et al., 2018; Weber et al., 2018).

## Big Data

Big Data is another relatively new data collection method that can be used to assemble population data to inform and guide population policies. Big Data is used to refer to large unstructured data sets that result from other processes, such as digital traces (mobile phone records, online financial transactions, etc.), online activity (Internet searches, social media analysis, etc.), sensing technologies (satellite data, personal sensors, etc.), and crowd-sourcing (humanitarian reporting, active soliciting of feedback through participation applications, etc.) (IUSSP, 2014; Helleringer, 2015; Ashford et al., 2022). Such data present challenges for collection, storage, management, and analysis given their large size and their relative heterogeneity.

Big Data has been used in epidemiological surveillance to monitor outbreaks of infectious diseases such as the seasonal flu and the spread of malaria (Wesolowski et al., 2012), Ebola outbreaks in West Africa (Milinovich et al., 2015), or more recently, the course the COVID-19 pandemic may take (Kogan et al., 2021). While Big Data allows us to gather mostly count data only (e.g., number of events, number of cases of a disease, etc.), several researchers have used Big Data to study fertility, mortality, or internal and international migration (see Cesare et al., 2018).

Big Data opens access to, and offers potential uses of, new data sources for population policies. Their integration into current national statistical information systems poses several challenges, however. One of these challenges relates to the

<sup>16</sup> A comparison of population counts from different gridded populations is available at: <https://sedac.ciesin.columbia.edu/mapping/popgrid/>, accessed on July, 6 2020.

representativity of the information provided by Big Data. The information provided by Big Data needs to be assessed carefully for potential biases in sample selection. Not everyone leaves a digital trace and those who use one digital platform may differ from those who use another one.

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## Promises and Pitfalls of a Data Revolution

One of the motivations for the development and use of new data collection methods in demography was the increasing need for spatially disaggregated population estimates in settings where data traditionally collected through ‘classic’ information systems, such as a national population and housing census, civil registration system or population register, were not available. Another motivation was the need to provide estimates for countries, areas and/or time periods for which data was missing. In the absence of data collected by traditional methods, innovative methods had to be pursued to produce data for the geographic level or time period needed and/or for its integration with the existing traditional data sources.

The adoption of the Sustainable Development Goals (SDGs) at the global level has acted as a major push.<sup>17</sup> Articulated around the blueprint of “Leaving no one behind”, the SDGs pursue the overall goal of a better and more sustainable future for everyone, requiring countries to monitor national and global progress towards a set of 17 goals and 231 target indicators. Tracking progress on many of these goals requires disaggregated data, showing the characteristics of groups identified by a series of variables (age, sex, ethnicity, income, geography, etc.). The SDGs were adopted by the United Nations General Assembly in 2015 and are intended to be reached by 2030. The SDGs are the successors of the Millennium Development Goals (MDGs) that guided international development efforts between 2000 and 2015. The MDGs consisted

of eight development goals for the year 2015. The MDGs focused primarily on less developed countries and emerging economies. In contrast, the SDGs are universal and apply to all countries of the world.

The set of SDG goals are ambitious and require the development of new indicators and the availability of detailed data. To make the SDGs a success, a ‘data revolution’ was needed,<sup>18</sup> whereby, in complement to the data collected by the traditional information systems, the missing data or new forms of data had to be collected through the mobilization of innovative methods.

Such a data revolution would consist in: *“The integration of these new data with traditional data to produce high-quality information that is more detailed, timely and relevant for many purposes and users, especially to foster and monitor sustainable development; The increase in the usefulness of data through a much greater degree of openness and transparency, avoiding invasion of privacy and abuse of human rights from misuse of data on individuals and groups, and minimising inequality in production, access to and use of data; Ultimately, more empowered people, better policies, better decisions and greater participation and accountability, leading to better outcomes for people and the planet”* (United Nations, 2014: 6).

The National Statistical Systems and the National Statistics Offices of all countries must play a key role in this data revolution. Given the various challenges (logistic, technical, financial, etc.) related to the collection, storage, management, and analysis of these new data, including their integration with the traditional data, however, the appropriate skills and expertise are oftentimes missing within national institutions, especially in countries where the need for data is

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<sup>17</sup> See <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>, accessed on July 6, 2020.

<sup>18</sup> The United Nations (2014: 6) defined ‘data revolution’ as: *“An explosion in the volume of data, the speed with which data are produced, the number of producers of data, the dissemination of data, and the range of things on which there is data, coming from new technologies such as mobile phones and the “internet of things”, and from other sources, such as qualitative data, citizen-generated data and perceptions data; A growing demand for data from all parts of society”*.

the most acute (Moultrie, 2016). The expertise required to handle the amount and types of the new data available, as well as the competencies needed to perform the complex statistical modelling behind the production of some detailed and disaggregated estimates, is found only among a limited number of institutions or research groups. If the aim is to provide information in a useful, frequent, and sustainable way, it will be necessary to invest in the development and/or upgrade of the national skills and competencies in those areas. This would require significant investments in the training and later the retention of national staff in national statistical institutions.

The increasing degree of complexity that the new data collection methods require poses several potential challenges. One of these risks is that the detailed data that are needed to formulate, implement, monitor, and assess population policies at the various (disaggregated) levels are produced with very limited or almost no local, regional, and/or national involvement by development institutions and/or research groups that have minimal knowledge and connection to national, regional, and local realities. The reliance on complex statistical or modelling approaches poses another set of challenges. First, these complex models are fully understandable by only a limited number of highly specialized professionals. The results provided by these models remain very difficult to assess properly given the general lack of technical competencies in countries where these models are applied and needed. These models provide series of measurement indicators that are not directly observed, but remain largely assumption-based estimates. As with any models, these estimates can be affected by model errors that are difficult to identify in the absence of empirical observations that can serve as references for checks on consistency. Indeed, the reliance on complex modelling exercises creates a situation whereby statistical institutions in statistically less developed countries become increasingly disempowered and dependent, instead of becoming the centerpiece of the process.<sup>19</sup> Such

a situation is diametrically opposed to the inclusive and sustainable objectives set forth in the SDGs process. Despite its promises, the data revolution poses a series of risks that constitutes a real threat to the design, formulation, implementation, and assessment of effective and efficient national, regional, and local population policies. Proper measures, such as a renewed global commitment to technical capacity-building as well as better policies to retain qualified staff in national institutions, need to be put in place. The data revolution should not come with a data segregation but must be inclusive and sustainable to leave no one behind.

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## Conclusion

This chapter provided an overview of the main methods of collecting data for the formulation, implementation, and assessment of population policies. This overview has focused mostly on quantitative data and did not touch upon qualitative methods. The latter approaches, however, also allow researchers and officials to inform, and identify possible shortcomings in, the formulation, implementation and assessment of population policies.

Consistent, complete, up-to-date, and inclusive data are key for the success of population policies and decision-making at every stage. Missing, biased, or selective data can result in inappropriate policy designs, where mis-specified indicators and targets lead not only to a waste of resources but also to diminished public trust in policy actions. Utmost care should therefore be placed in collecting, producing, and using reliable demographic data for population policies. Ensuring the use of reliable and transparent data helps to build as broad as possible public consensus around the adoption of population policies.

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Division organized in 2015, a participant, Officer in a national statistics institution, remarked ironically that people who have never set a foot in his country know better than the local administration what is happening in a given rural county.

<sup>19</sup> During a capacity-building workshop for sub-Saharan African countries that the United Nations Population

The need for reliable data requires national governments to keep investing in the development and the maintenance of functioning data collection systems. This entails continued and renewed investments in census operations, in the development of functioning and complete civil registration systems and/or population registers in settings where such systems are still lacking, and in sample surveys that provide more detailed information on a larger series of issues at regular intervals of few years. Because these efforts and investments will only unfold and be realised over the course of many years, governments also need to find ways to leverage innovative data collection methods to help them produce in the meantime useful information to support population policies. This is especially true in settings where data are nonexistent or present serious deficiencies that prevent their use for policy purposes.

Whether reinforcing current data collection operations or developing new demographic information systems, the same basic criteria need to be respected in producing demographic statistics, and in using this information for policy making and actions. To efficiently support population policies, demographic data need to be available, transparent, widely accessible, well documented, reliable, timely and inclusive. Meeting these criteria is the necessary first step in devising successful, and widely accepted, population policies.

## References

- Arnold, F. (1990). Assessment of the quality of birth history data in the demographic and health surveys. In *An assessment of DHS-I data quality* (DHS Methodological Reports No. 1) (pp. 83–111). Institute for Resource Development (IRD)/Macro Systems, Inc.
- Ashford, L. S., Kaneda, T., & Letouzé, E. (2022). Demystifying big data for demography and global health. *Population Bulletin*, 76(1).
- Cesare, N., Lee, H., McCormick, T., Spiro, E., & Billari, F. (2018). Promises and pitfalls of using digital traces for demographic research. *Demography*, 55(5), 1979–1999. <https://doi.org/10.1007/s13524-018-0715-2>
- Cleland, J. (1986). Fertility and family planning surveys: Future priorities in the light of past experiences. *International Family Planning Perspectives*, 12(1), 2–7.
- Hancioglu, A., & Arnold, F. (2013). Measuring coverage in MNCH: Tracking progress in health for women and children using DHS and MICS household surveys. *PLoS Medicine*, 10(5), e1001391. <https://doi.org/10.1371/journal.pmed.1001391>
- Helleringer, S. (2015). *Monitoring demographic indicators for the post 2015 Sustainable Development Goals (SDGs). A review of proposed approaches and opportunities*. International Union for the Scientific Study of Population (IUSSP). See [https://iussp.org/sites/default/files/SDG\\_Indicator\\_Review\\_IUSSP\\_2015.pdf](https://iussp.org/sites/default/files/SDG_Indicator_Review_IUSSP_2015.pdf)
- Hull, T. H., & Hartanto, W. (2009). Resolving contradictions in Indonesian fertility estimates. *Bulletin of Indonesian Economic Studies*, 45(1), 61–71. <https://doi.org/10.1080/00074910902836197>
- IUSSP. (2014). *Defining and successfully accomplishing the data revolution: The perspective of demographers*. International Union of the Scientific Study of Population (IUSSP). See [https://iussp.org/sites/default/files/Data\\_Revolution\\_Demographers\\_IUSSP.pdf](https://iussp.org/sites/default/files/Data_Revolution_Demographers_IUSSP.pdf)
- Kogan, N. E., Clemente, L., Liautaud, P., Kaashoek, J., Link, N. B., Nguyen, A. T., Lu, F. S., Huybers, P., Resch, B., Havas, C., Petutschnig, A., Davis, J., Chinazzi, M., Mustafa, B., Hanage, W. P., Vespignani, A., & Santillana, M. (2021). An early warning approach to monitor COVID-19 activity with multiple digital traces in near real time. *Science Advances*, 7(10), eabd6989. <https://doi.org/10.1126/sciadv.abd6989>
- Leyk, S., Gaughan, A. E., Adamo, S. B., de Sherbinin, A., Balk, D., Freire, S., Rose, A., Stevens, F. R., Blankespoor, B., Frye, C., Comenetz, J., Soricetta, A., MacManus, K., Pistoletti, L., Levy, M., Tatem, A. J., & Pesaresi, M. (2019). The spatial allocation of population: A review of large-scale gridded population data products and their fitness for use. *Earth System Science Data*, 11(3), 1385–1409. <https://doi.org/10.5194/essd-11-1385-2019>
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- Milunovich, G. J., Soares Magalhães, R. J., & Hu, W. (2015). Role of big data in the early detection of Ebola and other emerging infectious diseases. *The Lancet Global Health*, 3(1), E20–E21. [https://doi.org/10.1016/S2214-109X\(14\)70356-0](https://doi.org/10.1016/S2214-109X(14)70356-0)
- Monti, A., Drefahl, S., Mussino, E., & Härkönen, J. (2020). Over-coverage in population registers leads to bias in demographic estimates. *Population Studies*, 74(3), 451–469. <https://doi.org/10.1080/00324728.2019.1683219>
- Moultrie, T. A. (2016). Demography, demographers and the ‘data revolution’ in Africa. *Afrique contemporaine*, 258(2), 25–39. see <https://www.cairn.info/journal-afrique-contemporaine-2016-2-page-25.htm>
- Potter, J. (1977). Problems in using birth history analysis to estimate trends in fertility. *Population Studies*, 31(2), 335–364.
- Poulain, M., & Herm, A. (2013). Central population registers as a source of demographic statistics in Europe. *Population-E*, 68(2), 183–212. <https://doi.org/10.3917/popu.1302.0215>

- Pullum, T. (2006). *An assessment of age and date reporting in the DHS surveys, 1985–2003* (DHS Methodological Reports No 5). Macro International.
- Rutstein, S. O., & Way, A. (2014). *The Peru continuous DHS experience* (DHS Occasional Papers No. 8). ICF International.
- Schoumaker, B. (2014). *Quality and consistency of DHS fertility estimates, 1990 to 2012* (DHS Methodological Reports No. 12). ICF International.
- Spoorenberg, T. (2013). Demographic changes in Myanmar since 1983: An examination of official data. *Population and Development Review*, 39(2), 309–324. <https://doi.org/10.1111/j.1728-4457.2013.00593.x>
- Spoorenberg, T. (2014). Reconciling discrepancies between registration-based and survey-based estimates of fertility in Mongolia. *Population Studies*, 68(3), 375–382. <https://doi.org/10.1080/00324728.2014.935461>
- Spoorenberg, T. (2015). Myanmar's first census in more than 30 years: A radical revision of the official population count. *Population & Societies*, 527, 1–4.
- Spoorenberg, T. (2020). *Data and methods for the production of national population estimates: An overview and analysis of available metadata*. (Technical Paper No. 2020/1). United Nations, Department of Economic and Social Affairs (DESA), Population Division. See [https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/documents/2020/Sep/un\\_2020\\_techpaper1.pdf](https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/documents/2020/Sep/un_2020_techpaper1.pdf)
- Tabutin, D. (1984). *La collecte des données en démographie: Méthodes, organisation et exploitation*. Ordina Éditions.
- Tabutin, D. (2006). Information systems in demography: Chapter 121. In G. Caselli, J. Vallin, & G. Wunsch (Eds.), *Demography: Analysis and synthesis* (Vol. IV, pp. 493–522). Academic Press/Elsevier.
- Thomson, D. R., Rhoda, D. A., Tatem, A. J., & Castro, M. C. (2019). Gridded population survey sampling: A review of the field and strategic research agenda. *Preprints 2019*, 2019110072. <https://doi.org/10.20944/preprints201911.0072.v2>
- UNFPA. (2017). *New methodology: A hybrid census to generate spatially disaggregated population estimates*. UNFPA-Technical Brief. See [https://www.unfpa.org/sites/default/files/resource-pdf/Hybrid\\_Census\\_Brief\\_v9.pdf](https://www.unfpa.org/sites/default/files/resource-pdf/Hybrid_Census_Brief_v9.pdf)
- UNICEF. (2013). *Every child's birth right: Inequities and trends in birth registration*. UNICEF. See [https://www.unicef.org/publications/files/Birth\\_Registration\\_11\\_Dec\\_13.pdf](https://www.unicef.org/publications/files/Birth_Registration_11_Dec_13.pdf)
- United Nations. (1952). *Manual I. Methods of estimating total population for current dates* (Population Studies No. 10). United Nations, Department of Social Affairs, Population Division.
- United Nations. (2014). *A world that counts – Mobilizing the data revolution for sustainable development*. : United Nations Secretary-General's Independent Expert Advisory Group on a Data Revolution for Sustainable Development. See <http://www.undatarevolution.org/wp-content/uploads/2014/12/A-World-That-Counts2.pdf>
- United Nations Population Division. (2013). *Explaining differences in the projected populations between the 2012 and 2010 revisions of world population prospects: The role of fertility in Africa*. Population Facts No. 2013/10. See [https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un\\_2013\\_fact\\_sheet10.pdf](https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un_2013_fact_sheet10.pdf)
- United Nations Population Division. (2019). *World Population Prospects 2019: Methodology of the United Nations population estimates and projections*. United Nations, Department of Economic and Social Affairs. See [https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un\\_2019\\_wpp\\_methodology.pdf](https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un_2019_wpp_methodology.pdf)
- United Nations Statistics Division. (2014). *Principles and recommendations for a vital statistics system. Revision 3*. United Nations, Department of Economic and Social Affairs. See [https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Principles\\_and\\_Recommendations/CRVS/M19Rev3-E.pdf](https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Principles_and_Recommendations/CRVS/M19Rev3-E.pdf)
- United Nations Statistics Division. (2017). *Principles and recommendations for population and housing censuses. Revision 3*. United Nations, Department of Economic and Social Affairs. See [https://unstats.un.org/unsd/publication/seriesM/Series\\_M67Rev3en.pdf](https://unstats.un.org/unsd/publication/seriesM/Series_M67Rev3en.pdf)
- United Nations Statistics Division. (2018). *Handbook on civil registration and vital statistics systems: Management, operation and maintenance. Revision 1*. : United Nations, Department of Economic and Social Affairs. See <https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Handbooks/crvs/crvs-mgt-E.pdf>
- van de Walle, E. (2018). *Historical development of civil registration systems: A European perspective* (Technical Paper No. 2018/1). United Nations, Department of Economic and Social Affairs, Population Division. See [https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un\\_2018\\_techpaper1.pdf](https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un_2018_techpaper1.pdf)
- Wardrop, N. A., Jochem, W. C., Bird, T. J., Chamberlain, H. R., Clarke, D., Kerr, D., Bengtsson, L., Juran, S., Seaman, V., & Tatem, A. J. (2018). Spatially disaggregated population estimates in the absence of national population and housing census data. *Proceedings of the National Academy of Science (PNAS)*, 115(14), 3529–3537. <https://doi.org/10.1073/pnas.1715305115>
- Weber, E. M., Seaman, V. Y., Stewart, R. N., Bird, T. J., Tatem, A. J., McKee, J. J., Bhaduri, B. L., Moehl, J. J., & Reith, A. E. (2018). Census-independent population mapping in northern Nigeria. *Remote Sensing of Environment*, 204, 786–798. <https://doi.org/10.1016/j.rse.2017.09.024>
- Wesolowski, A., Eagle, N., Tatem, A. J., Smith, D. L., Noor, A. M., Snow, R. W., & Buckee, C. O. (2012). Quantifying the impact of human mobility on malaria. *Science*, 338(6104), 267–270. <https://doi.org/10.1126/science.1223467>



# Family Policies: How Do They Differ Around the World?

# 17

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## Introduction

Family policies are a subset of social policies that deal with the behavior and well-being of families, particularly in regard to children. Their aim is to support individuals to have the families they desire, and to give parents the possibility to work and to raise children in a supportive and secure home. Family policies have been used in an attempt to change fertility levels. This chapter looks at contemporary policies that are thought to affect family size around the world (both directly and indirectly), distinguishing between those that are more common in high- and low-fertility contexts. High-fertility countries are the countries with a total fertility rate (TFR)<sup>1</sup> above four. We define low-fertility countries as having a TFR below 2.1.<sup>2</sup>

<sup>1</sup> The TFR is the number of children expected if all women were to experience throughout their lifetime the births indicated through the age-specific fertility rates of a given period.

<sup>2</sup> 2.1 children per woman of fertile age is the average number of children deemed necessary to reproduce a country's population, the so-called fertility replacement

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According to Kamerman and Kahn (1976: 183) “*family policy*” means everything that government does to or for the family ...”. They define family policies as being both explicit and implicit. Explicit family policies are “*day care, child welfare and family counselling, income maintenance, family planning, some tax benefits, some housing policies, and the like*” with more clear ideas about which consequences those measures should have for the family, while “... *decisions on industrial locations, the building of roads, trade and tariff regulations, and immigration policies*” are defined as implicit family policies (Kamerman & Kahn, 1976: 183). As this definition is a very broad one, many researchers concentrate on parts of it. Robila (2014: 3) for example defines family policy “... as government activities that are designed to support families and enhance family members’ well-being”. This definition is also broad but narrows family policies down to what Kamerman and Kahn (1976) call explicit family policies.

National governments often claim other motivations for family policies than to decrease or increase family size. However, many of the policies we discuss carry the potential to do exactly this. We focus here on family policies that have been discussed in population policy discussions related to high or low fertility, in particular those that support individuals to have

rate. However, this figure may be higher when mortality conditions are less favorable.

the families they desire and to give parents the possibility to work and to raise children in a supportive and secure home. More specifically, we discuss policies that might reduce or increase family size, such as national governments' family planning programs, family policies that increase women's status and access to paid employment, family policies that increase gender equality in paid and unpaid work, and policies that increase children's well-being.

In the second section "[Family policies in high-fertility countries](#)" of the chapter, we discuss family policies that are relevant to reducing family size in high-fertility countries and their specificities. The third section "[Family policies in low-fertility countries](#)" of the chapter concentrates on low-fertility countries in different regions of the world. Finally, in the last section of the chapter, we summarize our findings and offer our conclusion.

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### Family Policies in High-Fertility Countries

The United Nations defines high fertility as total fertility levels above five children per woman (United Nations, 2007). In 2018, only ten countries had total fertility rates (TFRs) over five children per woman, all in sub-Saharan African (SSA). This threshold of high fertility thus encompasses a very small portion of countries. May (2012) uses a threshold instead of four children per woman to distinguish high-fertility contexts from others. In this chapter, we follow the latter threshold as a fertility rate of four will likely reflect an average in which a sizable proportion of women in a country do not strongly constrain their family size.

High-fertility countries today are all categorized as low-income or lower-middle income countries and are located primarily in sub-Saharan Africa, with a few additional cases of a TFR of around four in Central Asia, East Asia, the Middle East North Africa (MENA), and South Asia (World Bank, 2018). This diverse range of countries presents challenges in

describing a set of policies relevant to limiting fertility. We provide instead a discussion of policies and patterns that can currently be observed in the geographical region of SSA, but that extends to other regions as well as to some high-fertility contexts in the past.

### Family Policies to Reduce Family Size

Family planning programs are the main approach used to reduce family size in high-fertility contexts. Bongaarts et al. (1990) argue that family planning programs were a response to fears about global population growth. Even with many successful implementations of family planning programs, unwanted births and lack of fertility control persisted. Their predictions showed that if fertility mirrored women's stated preferences in surveys, this would result in 2.2 billion fewer births globally by 2100. Providing the means for fertility control serves both to prevent worrying population growth as well as support women to have the number of children they prefer to have.

Historically, fertility rates have declined when three conditions have been in place (Coale, 1973). First, individuals must perceive benefits of controlling fertility and limiting family size. Casterline (2001) sees this development as related to broad change in the social structure. The other two conditions are that family planning must be "*within the calculus of conscious choice*" and family planning tools must be accessible (Coale, 1973: 65). Family planning programs in high-fertility contexts have primarily focused on the latter condition by making contraception widely available.

Family planning programs include "*organized efforts to assure that couples who want to limit their family size and space children have access to contraceptive information and services and are encouraged to use them as needed*" (Simmons, 1986: 175). Family planning programs are implemented by local, national, and international NGOs as well as by national public sector actors. As this chapter is about policies, we refer to those family planning programs implemented by the



national government itself and not the work of NGOs. In countries with very poor economies, this means that our coverage misses vital family planning programs implemented by non-state actors. Nevertheless, the vast majority of countries, even those with very high fertility and low national income, have national family planning programs (Kuang & Brodsky, 2016).

Tsui (2001) organized the activities of family planning programs into four broad groups: “*policy and stage-setting, service and service-related, record keeping and evaluation, and availability of and access to fertility-control methods*” (Tsui, 2001: 200). Perhaps the most visible work in family planning programs relates to supply-side dynamics, where actual provision of contraceptives as well as logistics of method access and outreach by family planning workers are the main focus.

Kenya was the first country in sub-Saharan Africa to initiate a family planning program with the aim of planning and spacing childbirth (Rombo et al., 2014). The TFR declined from over eight children per woman in 1970 to currently around 3.5. The effectiveness of family planning programs that provide clinical and non-clinical contraceptive services cannot be denied (Tsui, 2001). Although private providers are a major player in family planning in some contexts, women in sub-Saharan Africa who use clinical methods generally receive these from government hospitals and clinics (Tsui, 2001). In terms of an impact on fertility rates, numerous individual case studies have consistently provided evidence of fertility decline after program implementation, and these are supported by cross-national, comparative studies as well (e.g., Jain & Ross, 2012).

Demand-side factors should not be ignored, as family planning tools may be available but unused if there is no desire to limit fertility or use them (Pritchett, 1994). Developments such as societal changes (e.g., economic development and industrialization) and factors related to increased human capital (educational expansion, the rise of opportunity costs for women, and desire for increased investment into children)

may be just as important to increased family planning take-up and reduced fertility. Family planning programs have more recently incorporated the idea that demand can be generated even without these major contextual changes, in particular the programs supported by the Bill & Melinda Gates Foundation (Krenn et al., 2014). Taking the Nigerian Urban Reproductive Health Initiative as an example, barriers to contraceptive use are perceived as related to knowledge, attitudes, and social norms. This family planning program focuses not only on provision, but on communication through multiple channels to demystify and de-medicalize family planning as well as increase its acceptability. Similar findings were evident after family planning programs that included media campaigns in Rwanda (Solo, 2008). This demand-led family planning approach works at the ideational level and research on both ideational change as well as actual contraceptive use provides evidence of its effectiveness when demand is initially low (Bongaarts, 2011; Krenn et al., 2014).

### **Family Policies to Increase Women’s Status and Access to Paid Employment**

Age at marriage is an important determinant of fertility rates; the idea being that the later women marry, the fewer children they will have over their lifetime. In wealthy countries, family policies do not influence age at marriage because young marriages are very rare. In other contexts, where teenage and even early teenage marriage is common, family policies that do not protect girls from very early marriage undermine their health, status, and education as well as increase the length of women’s years of childbearing. Sub-Saharan Africa is a heterogeneous region when it comes to legal frameworks, enforcement, and customary practices related to the minimum age for marriage (Maswikwa et al., 2015). Analyzing age at marriage and fertility trends, Hertrich (2017) shows that no country in Africa experienced the onset of fertility decline when adolescent marriage was

still common. Laws protecting girls (females under age 18<sup>3</sup>) from marriage in twelve sub-Saharan African countries were associated with 40% fewer child marriages and 25% lower adolescent childbearing (Maswikwa et al., 2015).

Early marriage not only can impede girls' educational attainment, but the reverse may also be true, in which greater access to education for girls can discourage early marriage. By eliminating tuition fees and other obstacles to education, girls in Ethiopia and Rwanda were 10–15% less likely to marry as adolescents, although the same benefits were not found in Cameroon and Malawi (Koski et al., 2018).

Investing in girls' education has been a policy response to high fertility, as the negative relationship between educational attainment and fertility is very well-established (Hill Cochrane, 1979; United Nations, 1995; Schultz, 1997). Although a causal relationship may not be as clear-cut as previously thought (Bledsoe et al., 1999; Osili & Long, 2008), several plausible mechanisms link higher educational levels to lower fertility. When girls and women are more educated, we see more use of modern and effective contraceptives (Rosenzweig & Schultz, 1985, 1989) and gains in child health, which leads to lower child mortality and fewer replacement births (Schultz, 1994).

With more education, girls' and women's earning opportunities increase and if their time becomes more valuable, the cost of staying home with children increases (Becker, 1981). Many SSA countries have made great gains in terms of education in recent years, such as in the case of Botswana in which boys and girls are equally represented in primary and secondary educational levels (Leite, 2014). Keeping children in school until completion remains difficult in other contexts, such as in Kenya, where completion of both primary and secondary school are very low (Rombo et al., 2014).

## Family Policies for Reconciling Work and Family Roles in Sub-Saharan Africa

In sub-Saharan Africa, female labor force participation is relatively high, often above 60%, while the TFR is high in many countries. This means that women face the problems of reconciliation of work and family life (Smit, 2011). Maternity leave policies do exist in many countries, but often only women in formal employment are eligible and, moreover, in most countries the employer has to pay the benefit. Consequently, in many countries these leaves are job-protected leaves. Only some countries in sub-Saharan Africa pay maternity leave benefits partly from social insurance funds (Smit, 2011). The duration of maternity leave varies from around 8 weeks in Malawi to 1 year in South Africa (SSPTW, 2019). Countries in which maternity leave is available to employed mothers and has to be paid by the employer are for example Zambia, Zimbabwe, Malawi, Mauritius, and Tanzania (Smit, 2011). Also, in Kenya, many new parents with low-income do not have access to the 60 days of maternity leave (in 2019: 90 days) provided to skilled professionals and others (Rombo et al., 2014). In Madagascar, Angola, South Africa, and Namibia, for example, replacements are partly paid from governmental sources. Many countries that have paid leave for employed mothers stipulate 100% income-related leave, but some have lower; for example, South Africa stipulates 66% up to 238 days and 20% from day 239 to 365, while Botswana states that no less than 50% of an income should be replaced (SSPTW, 2019).

Very few countries in sub-Saharan Africa have paid paternity leave. Tanzania has 3 days, while Mauritius gives 5 days, and Kenya and Mozambique 10 days/or 2 weeks (Smit, 2011; SSPTW, 2019). Madagascar has 10 days paid family leave for employees, which fathers could use as a sort of paternity leave. South Africa gives fathers 3 days "family responsibility leave" after the birth of a child (Smit, 2011). As for parental leave, there seems to be no debate about it in sub-Saharan Africa and no provisions for parental leave exist. Smit (2011) explains this as mostly

<sup>3</sup> Child marriage or adolescent marriage is defined as marriage of girls and boys below age 18.

due to a prevailing gender ideology that sees women as the main caregivers.

Regarding childcare for the youngest, sub-Saharan African countries often have limited financial resources and early childhood education and care (ECEC) programs are often underdeveloped. Especially care for children under three is often seen as the responsibility of the parents, not of the state, and therefore many countries do not have any publicly funded childcare provisions for the youngest children. For children between 3 and 6 years old, some provisions exist, but most of them are funded by NGOs, private organizations, and others. South Africa is one country where publicly funded childcare is offered. Enrolment rates for the 3–6 years old group range from, for example, 8% in Madagascar to 100% in Mauritius (Smit, 2011). Even if childcare exists and is funded by non-governmental actors, parents in many sub-Saharan African countries have to cater for themselves, like for example in Kenya, where parents of young children are left to their own resources to manage early childhood education (Rombo et al., 2014).

It is doubtful that policies to reconcile work and family roles greatly affect family size in sub-Saharan Africa, at least not in the way high-fertility countries might wish (i.e., conducting to smaller families). More probable is that these policies are influenced by the work of international organizations, such as the International Labour Organization (ILO) (see discussion in Smit, 2011). Nevertheless, it seems as if some countries also restrict the eligibility to, for example, maternity benefits in a way that rather rewards small families or longer birth spacing. For example, Lesotho stipulates that maternity benefit only be given for up to two children, while in Malawi mothers can claim the benefit every 3 years (SSPTW, 2019).

### **Family Policies to Reduce Child Mortality and Increase Children's Well-Being**

Infant and child mortality must be reduced for fertility rates to decline, as when women can

count on their children surviving, they do not need to have so many births in order to assure a certain number reach adulthood. Children under five are still at a much higher risk of death in sub-Saharan Africa than in the rest of the world; 79 out 1000 children do not reach age five in SSA compared to 41 in the entire world (UNICEF, 2017). As mentioned already, raising educational attainment of girls and women can lead to improvements in children's health as their parents' knowledge and resources increase. But infant and child mortality reduction requires more specific health policy and programs as well, some of which are unique to the geographical environment, such as malaria prevention and treatment.

Many NGOs, as well as the WHO and the World Bank have increased intervention support to countries with high under-five mortality, including “*antenatal care, postnatal care, infant and young child feeding, the expanded program on immunizations, integrated management of common childhood illness, prevention of mother-to-child transmission of HIV and use of insecticide treated nets, among others*” (Kipp et al., 2016: 2). The majority of African countries have developed their own child survival policies (Kipp et al., 2016). For example, Ghana instituted three national programs to improve health among children: the Child Health Policy 2007–2015, National Health Insurance (which offers free treatment of minors and free maternal delivery services), and the Community-based Health Planning and Services (Aheto, 2019). Despite these efforts, Ghana remains one of eight countries in Africa that has not seen adequate improvements in child mortality (Kipp et al., 2016). In many countries in SSA, widespread use of some strategies such as “*exclusive breastfeeding, pneumococcus and Haemophilus influenzae vaccination, treatment of childhood diarrhea, pneumonia and malaria, and use of insecticide treated nets*” (Kipp et al., 2016: 2) remains limited.

HIV/AIDS has posed unique problems for reducing infant and child mortality in SSA because of mother to child transmission. Botswana is an example of a country with a high prevalence of HIV/AIDS that has focused

heavily on protecting children. The Botswana program has managed to treat 90% of HIV-positive pregnant women with antiretroviral therapy to reduce the number of children born with HIV (Leite, 2014). Therefore, healthcare policies have the potential to still play a great role in reducing fertility rates in SSA.

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## Family Policies in Low-Fertility Countries

The United Nations defines a total fertility rate (TFR) below 2.1 per woman as below-replacement fertility, while a TFR below 1.3 per woman is defined as very low fertility (United Nations, 2007). Low-fertility countries are in this chapter defined as countries with a TFR below 2.1 children per woman of fertile age and thus encompass countries with below-replacement and very low fertility. In this group, most EU member countries are found, but also European countries that are not members of the EU, such as Ukraine and the Russian Federation. Moreover, the Anglo-Saxon countries and many East-Asian countries (Hong Kong, Japan, South Korea, Thailand, Malaysia, Vietnam, and Taiwan) also have below replacement rate fertility. To give some examples, the average TFR for the EU member countries was 1.54 in 2018, while the TFR for Ukraine was 1.30 and 1.57 for the Russian Federation (World Bank, 2018). Among the Anglo-Saxon countries, also the United States had a below-replacement TFR of 1.73 in 2018 (a country that earlier had a TFR above 2.1) and among the richer East-Asian countries, South Korea had a TFR as low as 0.98 in 2018 (World Bank, 2018). Fertility levels have decreased to such low levels that governments worry that there might not be enough people to ensure a labor force big enough to sustain an aging population. Here, countries with fertility levels closer to replacement level might experience less problems compared to countries with very low fertility (see May, 2012: 174).

Family policies in low-fertility countries are, however, seldom introduced by national governments with the explicit aim to increase

fertility even though they might have the potential to do so more indirectly (see also discussion in May, 2012: 177ff, 228). More often, they are designed with the aim to support individuals in having the families they desire. This can be done by supporting a gender-egalitarian division of paid and unpaid work in the family, or by supporting a male breadwinner and a stay-at-home spouse or by a combination of both. For example, both in Northern Europe (Denmark, Finland, Iceland, Norway, and Sweden) and in the Baltic countries (Estonia, Latvia, and Lithuania), family policies are designed foremost to help families reconcile work and family life (Aidukaite, 2019; Eydal et al., 2018; Wesolowski et al., 2019, see Figure 3). Moreover, Germany and Austria have changed their family policies from supporting a male-breadwinner model to facilitating work-family reconciliation during the last decades (Pfau-Effinger, 2018). Other Western and South-Western countries, for example Switzerland, Belgium, Italy, Portugal, Spain, and Greece, have family policies that build on a more gendered division of work and family life, where the mother usually takes care of small children and the household (Jurado-Guerrero & Naldini, 2018; Knijn et al., 2018; Pfau-Effinger, 2018).

Anglo-Saxon countries (Australia, Canada, Ireland, New Zealand, the United Kingdom, and the United States) vary in their family policies. What several of them have in common is that their family policies leave a lot of space to market forces and therefore these countries' family policy benefits replace a lower proportion of an individual's income (Ferrarini, 2003: 63, see also Figure 2.10). It is interesting to note that the United States of America is the only country without a legislated paid federal maternity leave, although some states, for example California, have paid parental leave (Woods, 2018: 185f). East-Asian low-fertility countries (Hong Kong, Japan, South Korea, and Taiwan) have responded to worries of low fertility and low productivity by different policy measures. On the whole, however, they still spend relatively little on those policies (Peng & Chien, 2018; Seung-yoon Lee & Baek, 2018). In Central and Eastern European

low-fertility countries (Bulgaria, the Czech Republic, Hungary, Poland, Slovakia, and Slovenia), policymakers have more often stated worries of low fertility as motives for family policy measures (see for example Rat & Szikra, 2018). Still, there is a lot of variation among these countries and several countries do have family policies that support work-family reconciliation (Wesolowski et al., 2019, see Figure 3).

Finally, one should not forget the influence of international organizations and their standards. For example, members of the European Union are influenced in their policy-making by rules and regulations at the EU level, including introducing family policy measures that support work-family reconciliation (Jurado-Guerrero & Naldini, 2018; Rat & Szikra, 2018).

### Policies to Increase Family Size

As stated before, not many policymakers explicitly state that they want to increase family size. Still, some family policies can be regarded as being introduced to increase family size. Maternity grants, for example, are grants mostly given in cash at the birth of a child. They can however also be given in kind. Especially if they increase with the number of children, they can be regarded as being introduced with the aim to increase family size. Here, Ukraine is a good example. A maternity grant increasing with the number of children was introduced in 2005. In 2010, the country had a maternity grant that increased substantially from 12,245 UAH (~370 EUR)<sup>4</sup> for the first child, to 25,000 UAH (~756 EUR) for the second child up to 50,000 UAH (~1510 EUR) for the third child (MISSCEO, 2020).<sup>5</sup> The same year, also Latvia had an extra supplement to their maternity grant that increased with the number of the children in the family. The maternity grant was 296 LVL (~421 EUR) and for the first

child an extra lump-sum payment of 100 LVL (~140 EUR) was given, while the supplement was 150 LVL (~210 EUR) for the second child, and 200 LVL (~285 EUR) from the third child upwards (MISSOC, 2020).<sup>6</sup>

Another interesting and relevant example of a family policy that aims to increase family size is the maternity capital given to mothers in the Russian Federation. When it was introduced in 2007, it amounted to 250,000 RUB (~7000 EUR) and a certificate with this amount was given to mothers for the second child onwards. Within 3 years after the birth of the child, the mother (in some cases the father), could use the maternity capital for four purposes: for improving their housing conditions, for the education of the child, for buying services and goods for children with special needs, and/or for the mother's own pension fund. The amount of the maternity capital and the range of purposes it can be used for has since been expanded, with the amount given to parents for the second child now doubled (MISSCEO, 2020). Despite this program, fertility in Russia remains well below replacement; though fertility rose from 1.3 to 1.8 in the decade following the onset of the maternity capital program, it has since fallen back to 1.5 (Zakharov, 2019).

In addition, monthly flat-rate or fiscal child benefits that are more directly targeted at large families fit with our definition. Monthly flat-rate child allowances are benefits given to families in cash, while fiscal child allowances are benefits given as tax allowances or tax rebates. Poland, for example, introduced a monthly flat-rate child allowance of 500 Złoty (~110 EUR) per month in 2016 from the second child onwards, regardless of income with the explicit aim to influence birth rates (European Commission, 2018).<sup>7</sup>

It is interesting to note that in the examples given above, Ukraine, Latvia, and Poland have since changed the design of these benefits. While Latvia abolished the supplement in 2011, Ukraine

<sup>4</sup> All amounts in EUR as per September 9, 2020; <https://www1.oanda.com/currency/converter/>

<sup>5</sup> From 2014 on, this maternity grant had been changed into a universal benefit of 41,280 UAH (~1248 EUR) per child (MISSCEO, 2020).

<sup>6</sup> The maternity grant supplement was abolished in 2011 (MISSOC, 2020).

<sup>7</sup> This benefit was later changed and in 2020 it is given for every child a family has (MISSOC, 2020).

and Poland now give these benefits for every child in the family with the same amount (MISSCEO, 2020; MISSOC, 2020). In the case of the Russian maternity capital program, researchers have noted that mothers that have the right to it did not use their maternity capital within the given time frame due to complicated bureaucratic processes and distrust in Russian family policy (Borozdina et al., 2016). However, other researchers also estimated that the program had led to an increase in the TFR of around 0.15 children per woman (Slonimczyk & Yurko, 2014). As to the increased maternity grant, introduced in Ukraine in 2005, researchers doubted that it would help to increase fertility due to the complicated application process (Perelli-Harris, 2008). Overall, researchers are doubtful as to how much pronatalist policies in the form of cash transfers really can influence fertility levels in the long term. Women may just have same number of children that they would have had anyway, but have them sooner to take advantage of the available benefits. If women have decided to limit their family size in order to advance their own education, work, or careers, cash incentives seem unable to persuade them to have additional children (May, 2012: 179).

### **Policies to Increase Women's Labor Market Participation**

Policies to increase women's labor market participation have been introduced to increase the labor force of a country and thus to sustain the economy of a country and the non-working population. Moreover, such policies have also been introduced to support or increase gender equality in both work and family life. In Sweden, for example, policy discussions in the 1960s were about increasing the labor force and tax revenues through immigration and through incentivizing women to join the labor market. At the same time, increased gender equality was an important part of discussions among policymakers and activists (Lundqvist & Roman, 2008). Also, in other Nordic countries, increasing gender equality by supporting parents to work and provide

child care were important motives for the design of family policies (Eydal et al., 2018: 195). Discussions about increasing gender equality were important in the formation and transformation of family policies in Estonia after the break-up of the Soviet Union (Aidukaite, 2006). More recently, increasing gender equality in work and care were important motives for the restructuring of family policies in Germany and Austria (Pfau-Effinger, 2018: 168ff).

Family policies can be especially helpful in supporting mothers' ability to undertake paid work through income-related dual parental leave and public childcare. Income-related maternity and/or dual-parental leave are benefits given to mothers or both parents as a percentage of their income during a number of weeks after the birth of a child. Both the percentage of income-replacement and the duration of the benefit varies a lot between countries. When income is replaced to a high degree, income-related maternity and/or dual-parental leave is a policy measure that facilitates and even incentivizes women to take on paid work and also to return to work after the leave is over (see for example Bäckman & Ferrarini, 2010). With a higher income-replacement, it also makes fathers more likely to go on leave and take care of the child (Wesolowski & Ferrarini, 2018). Here, the Nordic countries, especially Sweden and Norway, have been forerunners, but also the Baltic countries. Some Central and Eastern European countries, such as Hungary, Bulgaria, and Romania, have income-related parental leaves that replace between 70% and 100% of an individual's income (Wesolowski et al., 2019, see Figure 3). Moreover, Germany and Austria have introduced generous income-related parental leaves during the last decade (Pfau-Effinger, 2018).

Public childcare policies are publicly-funded childcare provisions for young children, for example public daycare centers. The age when a child can be enrolled in public childcare varies across countries. For some children enrollment might start when they are 3 years old, for others public childcare enrollment starts already when they are one to one and a half years old. International organizations, such as the EU and the

OECD have special recommendations for what they call Early Childhood Education and Care (ECEC), which includes also private provisions (European Commission, 2020; OECD, 2020). One such recommendation by the EU is that 95% of children above 4 years old should be in such education programs (European Commission, 2020).

With respect to ECEC, publicly funded and affordable childcare for the youngest children that can be used during full working weeks should especially facilitate women's labor market participation (Bäckman & Ferrarini, 2010; Rostgaard, 2018: 107). In contrast to the so-called home-care allowance given mostly to mothers to care for their small children at home, public childcare for the youngest makes it possible for mothers to re-enter the labor force sooner (see discussions in Ferrarini, 2003). Rostgaard (2018) states that international organizations (EU and OECD) influenced their member countries to increase public childcare services over the years. This also led to an increase in enrollment rates for example for the youngest children, even though those rates conceal the differences in accessibility and usage to some degree. While small children's enrollment in childcare in the Nordic countries is not dependent on family background, the enrollment in France, for example, is much more common among high-income families (Rostgaard, 2018: 104ff). As enrollment rates and the age when children can access childcare varies considerably between countries, it is hard to find comparable data for the enrollment of the youngest children, i.e., 0–2 years old, in public childcare. For the year 2005, however, it varied from around 2% in the Czech Republic to almost 75% in Denmark (Wesolowski, 2015, Paper I: 18). Vandenbroeck et al. (2018: 37) state that research shows that high enrollment in childcare is positively related to mothers' labor force participation.

As stated in the beginning of the section "[Family policies in low-fertility countries](#)", family policy measures that are intended to increase gender equality, e.g., by increasing women's labor force participation, might also have "unintended" consequences. By facilitating mothers'

participation in paid work, these policies reduce mothers' direct costs and opportunity costs of having children and might help to increase family size. Research has also indicated that countries with family policies that support mother's involvement in paid work tend to have higher fertility rates among the group of low-fertility countries (Wesolowski & Ferrarini, 2018).

### **Policies to Increase Men's Involvement in Household Work and Childrearing**

Another way of increasing gender equality and helping women to reconcile care and work roles is more specifically to facilitate fathers' increased involvement in childrearing and household work. This has been done through paternity leaves in connection with the child's birth and/or parental leave quotas, in which some months out of the total parental leave are reserved for the other parent to take.

Several low-fertility countries have introduced paternity leave for fathers to take time off from work in close connection to the birth of a child. Paternity leaves are leaves that can be taken by the father at the same time that the mother is on leave and recovering from childbirth. These leaves, also called daddy days, can differ in length and in how they are remunerated. In Estonia and Sweden, for example, paternity leave is 2 weeks long and remunerated at 100% of a net wage; Finland even has a leave of around 3 weeks (MISSOC, 2020). Under the pressure of EU regulations, however, more and more countries have introduced paid paternity leaves.

Another way to increase father's involvement in childrearing and the household is income-related dual parental leave, where a number of months is reserved for either parent (often somewhat misleadingly called the father's quota). Here, Northern European countries like Iceland, Norway, and Sweden are leading. In Sweden, 3 months of the parental leave are reserved for either parent and cannot be transferred to the other parent. In Iceland, the reserved period is 9 months (MISSOC, 2020). Other countries, for example Germany, give parents bonus months if

they share the leave more evenly (Kosłowski et al., 2019: 20ff.) In Sweden, the introduction of the reserved months in the parental leave has led to an increase in the percentage of fathers being on parental leave and also in the length of parental leave taken by fathers (Duvander & Johansson, 2012). This research indicates that such policies increase fathers' possibility to partake in the care of children, which then, as stated in section "[Policies to increase women's labor market participation](#)", also carries the potential to lower the opportunity costs for having children as it decreases the double burden of working mothers.

### **Policies to Increase Children's Well-Being**

Family policy benefits that increase the families household income both directly and indirectly can be seen as policies with the potential to increase children's well-being. Income-related parental leave benefits, for example, are one possibility. To repeat the definition stated above, income-related parental leave consists of benefits given to mothers or both parents as a percentage of their income during a varying number of weeks after the birth of a child. They increase the family income through incentives for mothers to take up paid work and can thus decrease child poverty. Moreover, parental leave benefits given in flat-rate amounts could carry this potential, if they are generous.

In addition, monthly flat-rate or fiscal child allowances are a way to increase the household income for families with children that can increase child well-being. To recapitulate, monthly flat-rate child allowances are benefits given to families in cash, while fiscal child allowances are benefits given as tax allowances or tax rebates. Especially monthly child allowances given in cash carry the potential to reduce child poverty directly, while fiscal child allowances could instead increase the family income more indirectly through the possibility of getting a tax refund. Child benefits seem to be more common in European countries compared to other countries in the world (Bradshaw,

2018: 86ff). In some instances, cash child benefits also include a sibling bonus or a supplement for large families. In 2020, for example, Austria granted child benefits that increased both by age of the child and by the number of children in the family. Added to that, families with three or more children could also receive a supplement per child if the family income was below a certain income threshold (MISSOC, 2020). This carries the potential to reduce poverty and research also indicates that child benefits contribute considerably to reducing poverty among families with low incomes in European countries; the reduction varies from around 30% in Greece to around 70% in Finland (Bradshaw, 2018: 89, Figure 7.3). Bradshaw (2018: 86) moreover states that child benefits contribute to children's cognitive development precisely because they reduce poverty as poor malnourished children, for example, encounter problems in school and fall ill more often.

Public childcare has been taken as an example of family policies increasing women's labor market participation in section "[Policies to increase women's labor market participation](#)" above. As stated, public childcare is publicly-funded childcare provisions for young children. However, by facilitating women's employment, public childcare also helps to increase family income (Vandenbroeck et al., 2018: 38), which in turn might reduce child poverty, especially in "old" welfare states where income-related parental leave and extensive public childcare often go hand in hand (see for example Bäckman & Ferrarini, 2010). Moreover, Rostgaard (2018: 98) cites research that has shown that childcare (in general, not only publicly funded, author's note) positively influences children's cognitive development. As such, childcare enhances children's possibility to do well when they are young, but it also influences how well they are faring at school and later in life (even though the long-term effects of childcare are somewhat disputed, Rostgaard, 2018: 98). Added to that, early childhood education and care impacts not only children's cognitive development, but also their social and emotional development (Vandenbroeck et al., 2018).

So, both child benefits and public childcare have the potential to increase children's well-



being. However, both by increasing family income directly, as child benefits given in cash, or indirectly by giving especially mothers the possibility to partake in paid work, as in the case of public childcare, these policies also might help to increase family size by decreasing the direct costs and opportunity cost of having children.

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## Summary and Conclusion

Both high- and low-fertility countries structure their family policies around the good of the family and, in particular, support families to have the number of children they prefer to have. In general, these family policies do not explicitly attempt to influence how many children women and men have. However, we noted a few cases in which family policies are more explicitly aimed at influencing preferences (such as family planning programs focused on changing demand for children and maternity grants that “reward” or incentivize giving birth to more children). The majority of family policies focus on supporting the well-being of the whole family as well as offering women the fullest range of options related to work and family. In particular, policies in low-fertility contexts were often introduced to support mothers’ continued participation in the labor force and to increase gender equality in paid work (for discussions in Sweden, see Lundqvist & Roman, 2008). When fertility is much lower than two children per woman, the assumption is then that women prefer to have two children and are not able to reach this family size for structural or economic reasons. Indeed, research has demonstrated that there is a strong two-child norm in many countries (Sobotka & Beaujouan, 2014). On the other hand, indirect policies in high-fertility contexts assume that if women were educated and had a full range of options and that the survival of their children is guaranteed, they would prefer to have smaller family sizes. Evidence for this assumption can be seen in the relatively high levels of unmet need for modern contraceptives still seen widely across high-fertility contexts (Cahill et al., 2018).

In low-fertility countries, below-replacement fertility has been a worry for policymakers due to the processes of population aging, where a shrinking labor force might not be able to sustain the non-working population. Family policies that increase gender equality and also, in other ways, improve a long range of other social conditions, for example children’s well-being, seem to have been able to increase family size more than pronatalist policies (see also discussion in May, 2012: Chapter 8). The more comprehensive the family policy package is in regard to facilitating work-family reconciliation, the more it might lower the opportunity costs for women in particular to have children and therefore increase family size (see also McDonald, 2000). Of course, some policies, such as public childcare (or ECEC in general) also influence children’s well-being in a positive manner (see section “Policies to increase children’s well-being” in the section “Family policies in low-fertility countries” of this chapter). The challenge for low-fertility contexts is for policymakers to take into account the complex societal arrangements in these settings, where policies cannot easily be implemented top-down.

The greatest challenge for high-fertility contexts is stable economic growth that can fuel sufficient funding of educational and health programs. Societal change that comes with peace, industrialization, and economic growth may naturally lead to an evolution of social norms that support high demand for fertility, but this remains to be seen.

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## References

- Aheto, J. M. K. (2019). Predictive model and determinants of under-five child mortality: Evidence from the 2014 Ghana demographic and health survey. *BMC Public Health*, 19(1), 1–10. <https://doi.org/10.1186/s12889-019-6390-4>
- Aidukaite, J. (2006). Reforming family policy in the Baltic States: The views of the elites. *Communist and Post-Communist Studies*, 39(1), 1–23. <https://doi.org/10.1016/j.postcomstud.2005.09.004>
- Aidukaite, J. (2019). The welfare systems of the Baltic States following the recent financial crisis of 2008–2010: Expansion or retrenchment? *Journal of Baltic*

- Studies*, 50(1), 39–58. <https://doi.org/10.1080/01629778.2019.1570957>
- Bäckman, O., & Ferrarini, T. (2010). Combating child poverty? A multilevel assessment of family policy institutions and child poverty in 21 old and new welfare states. *Journal of Social Policy*, 39(2), 275–296. <https://doi.org/10.1017/S0047279409990456>
- Becker, G. S. (1981). *A treatise on the family*. Harvard University Press.
- Bledsoe, C. H., Casterline, J. B., Johnson-Kuhn, J. A., & Haaga, J. G. (1999). *Critical perspectives on schooling and fertility in the developing world*. National Academies Press.
- Bongaarts, J. (2011). Can family planning programs reduce high desired family size in Sub-Saharan Africa? *International Perspectives on Sexual and Reproductive Health*, 37(4), 209–216. <https://doi.org/10.1363/3720911>
- Bongaarts, J., Mauldin, W. P., & Phillips, J. F. (1990). The demographic impact of family planning programs. *Studies in Family Planning*, 21(6), 299–310. <https://doi.org/10.2307/1966918>
- Borozdina, E., Rotkirch, A., Temkina, A., & Zdravomyslova, E. (2016). Using maternity capital: Citizen distrust of Russian family policy. *European Journal of Women's Studies*, 23(1), 60–75. <https://doi.org/10.1177/1350506814543838>
- Bradshaw, J. (2018). Chapter 7: Family benefit systems. In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 84–95). Edward Elgar Publishing.
- Cahill, N., Sonneveldt, E., Stover, J., Weinberger, M., Williamson, J., Wie, C., Brown, W., & Alkema, L. (2018). Modern contraceptive use, unmet need, and demand satisfied among women of reproductive age who are married or in a union in the focus countries of the family planning 2020 initiative: A systematic analysis using the family planning estimation tool. *The Lancet*, 391(10123), 870–882. [https://doi.org/10.1016/S0140-6736\(17\)33104-5](https://doi.org/10.1016/S0140-6736(17)33104-5)
- Casterline, J. B. (2001). Chapter 1: Diffusion processes and fertility transition: Introduction. In J. B. Casterline (Ed.), *Diffusion processes and fertility transition: Selected perspectives* (pp. 1–38). National Academies Press.
- Coale, A. J. (1973). *The demographic transition reconsidered*. International Union for the Scientific Study of Population.
- Duvander, A. Z., & Johansson, M. (2012). What are the effects of reforms promoting fathers' parental leave use? *Journal of European Social Policy*, 22(3), 319–330. <https://doi.org/10.1177/0958928712440201>
- European Commission. (2018). *First results of Poland's family 500+ programme released*. <https://ec.europa.eu/social/main.jsp?langId=en&catId=1246&newsId=9104&furtherNews=yes>. Accessed on 12 Aug 2020.
- European Commission. (2020). *Early childhood education and care*. [https://ec.europa.eu/education/policies/early-childhood-education-and-care\\_en](https://ec.europa.eu/education/policies/early-childhood-education-and-care_en). Accessed on 30 Aug 2020.
- Eydal, G. B., Rostgaard, T., & Hiilamo, H. (2018). Chapter 15: Family policies in the Nordic countries: Aiming at equality. In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 195–208). Edward Elgar Publishing.
- Ferrarini, T. (2003). *Parental leave institutions in eighteen post-war welfare states*. Stockholm University.
- Hertrich, V. (2017). Trends in age at marriage and the onset of fertility transition in Sub-Saharan Africa. *Population and Development Review*, 43(Issue S1), 112–137.
- Hill Cochrane, S. (1979). *Fertility and education – What do we really know?* Johns Hopkins Press.
- Jain, A. K., & Ross, J. A. (2012). Fertility differences among developing countries: Are they still related to family planning program efforts and social settings? *International Perspectives on Sexual and Reproductive Health*, 38(1), 15–22. See <http://www.jstor.org/stable/41472761>
- Jurado-Guerrero, T., & Naldini, M. (2018). Chapter 1: Child and family policy in Southern Europe. In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 209–222). Edward Elgar Publishing.
- Kammerman, S. B., & Kahn, A. J. (1976). Explorations in family policy. *Social Work*, 21(3), 181–186. <https://doi.org/10.1093/sw/21.3.181>
- Kipp, A. M., Blevins, M., Haley, C. A., Mwinga, K., Habimana, P., Shepherd, B. E., Aliyu, M. H., Ketsela, T., & Vermund, S. H. (2016). Factors associated with declining under-five mortality rates from 2000 to 2013: An ecological analysis of 46 African countries. *BMJ Open*, 6(1), e007675. <https://doi.org/10.1136/bmjopen-2015-007675>
- Knijin, T., Martin, C., & Ostner, I. (2018). Chapter 12: Triggers and drivers of change in framing parenting support in Northwestern Europe. In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 152–166). Edward Elgar Publishing.
- Koski, A., Strumpf, E. C., Kaufman, J. S., Frank, J., Heyman, J., & Nandi, A. (2018). The impact of eliminating primary school tuition fees on child marriage in Sub-Saharan Africa: A quasi-experimental evaluation of policy changes in 8 countries. *PLoS One*, 13(5), e0197928. <https://doi.org/10.1371/journal.pone.0197928>
- Koslowski, A., Blum, S., Dobrotić, I., Macht, A., & Moss, P. (2019). *International review of leave policies and research 2019*. International Network on Leave Policies and Research. See <https://www.leavenetwork.org/annual-review-reports/>
- Krenn, S., Cobb, L., Babalola, S., Odeku, M., & Kusemiju, B. (2014). Using behavior change communication to lead a comprehensive family planning program: The Nigerian urban reproductive health initiative. *Global Health: Science and Practice*, 2(4), 427–443. <https://doi.org/10.9745/GHSP-D-14-00009>

- Kuang, B., & Brodsky, I. (2016). Global trends in family planning programs, 1999–2014. *International Perspectives on Sexual and Reproductive Health*, 42(1), 33–44. <https://doi.org/10.1363/42e0316>
- Leite, R. (2014). Chapter 4: Child- and family-focused policy in Botswana. In M. Robila (Ed.), *Handbook of family policies across the globe* (pp. 47–58). Springer.
- Lundqvist, Å., & Roman, C. (2008). Construction(s) of Swedish family policy, 1930–2000. *Journal of Family History*, 33(2), 216–236. <https://doi.org/10.1177/0363199007313616>
- Maswikwa, B., Richter, L., Kaufman, J., & Nandi, A. (2015). Minimum marriage age laws and the prevalence of child marriage and adolescent birth: Evidence from Sub-Saharan Africa. *International Perspectives on Sexual and Reproductive Health*, 41(2), 58–68. <https://doi.org/10.1363/4105815>
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- McDonald, P. (2000). Gender equity in theories of fertility transition. *Population and Development Review*, 26(3), 427–439. See <http://www.jstor.org/stable/172314>
- MISSCEO. (2020). *Misseeo database – Comparative tables – Maternity/paternity & family benefits*. See <http://www.misseeo.coe.int/>
- MISSOC. (2020). *Misseeo database – Comparative tables*. See <https://www.missoc.org/missoc-database/comparative-tables/results/>
- OECD. (2020). *Early childhood education and care*. Organisation for Economic Co-operation and Development. See <http://www.oecd.org/education/school/earlychildhoodeducationandcare.htm>. Accessed on 30 Aug 2020.
- Osili, U. O., & Long, B. T. (2008). Does female schooling reduce fertility? Evidence from Nigeria. *Journal of Development Economics*, 87(1), 57–75. <https://doi.org/10.1016/j.jdeveco.2007.10.003>
- Peng, I., & Chien, Y. C. (2018). Chapter 18: Not all in the same family: Diverging approaches to family policy in East Asia. In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 236–248). Edward Elgar Publishing.
- Perelli-Harris, B. (2008). Ukraine: On the border between old and new in uncertain times. *Demographic Research*, 19, 1145–1178. <https://doi.org/10.4054/DemRes.2008.19.29>
- Pfau-Effinger, B. (2018). Chapter 13: Comparing persistence and change in family policies of conservative welfare states. In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 168–181). Edward Elgar Publishing.
- Pritchett, L. H. (1994). Desired fertility and the impact of population policies. *Population and Development Review*, 20(1), 1–55. <https://doi.org/10.2307/2137629>
- Rat, C., & Szikra, D. (2018). Chapter 17: Family policies and social inequalities in Central and Eastern Europe: A comparative analysis of Hungary, Poland and Romania between 2005 and 2015. In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 223–235). Edward Elgar Publishing.
- Robila, M. (2014). *Handbook of family policies across the globe*. Springer.
- Rombo, D. O., Wilson, S. M., & Oseland, L. M. (2014). Chapter 3: Public policy and families in Kenya. In M. Robila (Ed.), *Handbook of family policies across the globe* (pp. 31–46). Springer.
- Rosenzweig, M. R., & Schultz, T. P. (1985). The demand for and supply of births: Fertility and its life cycle consequences. *The American Economic Review*, 75(5), 992–1015. See <http://www.jstor.org/stable/1818641>
- Rosenzweig, M. R., & Schultz, T. P. (1989). Schooling, information and nonmarket productivity: Contraceptive use and its effectiveness. *International Economic Review*, 30(2), 457–477. <https://doi.org/10.2307/2526657>
- Rostgaard, T. (2018). Chapter 8: Childcare as a global policy agenda. In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 96–110). Edward Elgar Publishing.
- Schultz, T. P. (1994). Human capital, family planning, and their effects on population growth. *The American Economic Review*, 84(2), 255–260. <http://www.jstor.org/stable/2117839>
- Schultz, T. P. (1997). Chapter 8: Demand for children in low-income countries. In M. R. Rosenzweig & O. Stark (Eds.), *Handbook of population and family economics* (pp. 349–430). Elsevier.
- Seung-Yoon Lee, S., & Baek, S. (2018). Chapter 9: The social investment approach in the productivist welfare regime: The unfolding of social investment in South Korea and Japan. In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 111–123). Edward Elgar Publishing.
- Simmons, G. B. (1986). Chapter 6: Family planning programs. In J. A. Menken (Ed.), *World population and U.S. policy: The choices ahead* (pp. 175–206). W. W. Norton.
- Slonimczyk, F., & Yurko, A. (2014). Assessing the impact of the maternity capital policy in Russia. *Labour Economics*, 30, 265–281. <https://doi.org/10.1016/j.labeco.2014.03.004>
- Smit, R. (2011). Family-related policies in Southern African countries: Are working parents reaping any benefits? *Journal of Comparative Family Studies*, 42(1), 15–36. <http://www.jstor.org/stable/41604580>
- Sobotka, T., & Beaujouan, E. (2014). Two is best? The persistence of a two-child family ideal in Europe. *Population and Development Review*, 40(3), 391–419. <https://doi.org/10.1111/j.1728-4457.2014.00691.x>
- Solo, J. (2008). *Family planning in Rwanda: How a taboo topic became priority number one*. IntraHealth International.
- SSPTW. (2019). *Social security programs throughout the world: Africa, 2019*. See <https://www.ssa.gov/policy/docs/progdesc/ssptw/2018-2019/africa/index.html#>. Accessed on 12 Sept 2020.
- Tsui, A. O. (2001). Population policies, family planning programs, and fertility: The record. *Population and Development Review*, 27(Suppl), 184–204. See <http://www.jstor.org/stable/3115256>

- UNICEF. (2017). *Levels & trends in child mortality: Estimates developed by the UN Inter-Agency Group for Child Mortality Estimation*. UN Inter-agency Group for Child Mortality Estimation.
- United Nations. (1995). *Recent evidence from the demographic and health surveys*. United Nations.
- United Nations. (2007). *Total fertility rate – Methodology sheets*. United Nations.
- Vandenbroeck, M., Lenaerts, K., & Beblavý, M. (2018). *Benefits of early childhood education and care and the conditions for obtaining them*. Publications Office of the European Union.
- Wesolowski, K. (2015). *Maybe baby? Reproductive behaviour, fertility intentions, and family policies in post-communist countries, with a special focus on Ukraine*. Uppsala University.
- Wesolowski, K., & Ferrarini, T. (2018). Family policies and fertility: Examining the link between family policy institutions and fertility rates in 33 countries 1995-2011. *International Journal of Sociology and Social Policy*, 38(11/12), 1057–1070. <https://doi.org/10.1108/IJSSP-04-2018-0052>
- Wesolowski, K., Billingsley, S., & Neyer, G. (2019). *Family policy support for the earner-carer and traditional family models – An application of SPIN data to Lithuania and Sweden, 1995–2015*. University of Stockholm, Department of Sociology, Demography Unit.
- Woods, D. R. (2018). Chapter 14: The UK and the US: Liberal models despite family policy expansion? In G. B. Eydal & T. Rostgaard (Eds.), *Handbook of family policy* (pp. 182–194). Edward Elgar Publishing.
- World Bank. (2018). *Fertility rate, total (births per woman)*. World Bank Group. See <https://data.worldbank.org/indicator/SP.DYN.TFRT.IN>. Accessed on 19 August 2020.
- Zakharov, S. (2019). *Fertility prospects in Russia through the prism of the past two decades*. Paper presented at the conference “Demographic trends in Russia: Legacy of the past of the Soviet era or a new tendency”, Moscow, November 21–22.



# Population and Health Policies in Urban Areas

# 18

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## Introduction

### Urban Growth in Low- and Middle-Income Countries

Throughout human history, cities with their concentration of people, human capital, wealth, infrastructure, and services, have been the center of creativity, economic opportunities, technological advancement, and social and political development. But while urbanization continues to present many opportunities, it also leads to new challenges. Today's most pressing policy issues and social upheavals – historic inequalities, the harrowing impacts of climate change, and rising authoritarianism – are increasingly occurring in the world's growing cities.

Despite the influence of cities, until recently, most humans lived in small settlements dispersed across rural areas. By the mid-twentieth century, this began to change. Urban areas across the globe experienced rapid growth and by 2007, for the first time in human history, the proportion of urban dwellers grew from 29% in 1950 to more than half of the world's population (however,

definitions of urban areas vary widely between countries; more on this later). Currently, urbanization levels differ widely between geographic regions, with 81% of North Americans living in urban areas, 81% of people in Latin America and the Caribbean, 74% of Europeans, 68% of people in Oceania, and 50% of inhabitants in Asia. These figures are in stark contrast with those in Africa, where only 43% of the population live in urban areas (United Nations, 2018).

Between 1950 and 2014, the global urban population has grown from 746 million to almost four billion and is expected to reach 6.3 billion by mid-century. Today, more than 55% of the world population lives in urban areas and this proportion is expected to increase to almost 70% by 2050, adding another 2.5 billion urban residents to the global urban population. Almost 90% of this increase will take place in Asia and Africa (United Nations, 2018).

Latin America and the Caribbean boast the fourth largest urban population worldwide. The region is home to six mega-cities of more than ten million inhabitants, hosting 18% of the region's urban population, which is the highest proportion among all geographic regions. Two of the biggest cities in the world are in Latin America: São Paulo and Mexico City with 22 million inhabitants each (United Nations, 2018). The region has urbanized rapidly since 1950, and the urban population has grown seven-fold between 1950 and 2018, from 70 million to 526 million. But while the urban growth rate in the region was close to that of Africa in 1950–1955

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(4.6% vs. 4.8%), it has declined rapidly to 1.3% between 2015 and 2020, and is expected to continue to fall further to only 0.5% by 2045–2050 (United Nations, 2018). The United Nations predict that the current (2018) population of 526 million in the region will increase to 685 million in 2050, but its share of total population will decline from 13% to 10%. Countries with the highest urbanization rates are some of the small Caribbean Island states like Anguilla, Saint Maarten, and the Cayman Islands (100%), followed by Guadeloupe (99%), the U.S. Virgin Islands (96%), Uruguay (95%), Puerto Rico (94%), Argentina (92%), and Brazil (87%). By 2050, 17 countries or areas in the Latin American and Caribbean region will be more than 90% urban, including Argentina, Brazil, the Dominican Republic, Venezuela (Bolivarian Republic of), Chile, French Guiana, and Costa Rica (United Nations, 2018).

Globally, Asia has the largest number of urban inhabitants, an estimated 2.3 billion people in 2018, accounting for 53% of global urban population. This number is expected to rise to 3.5 billion by 2050. The urban growth rate in Asia was at or above 3% during the 1990s and has since declined to 2.2% in 2015–2020. It is projected to decline to 0.8% by 2045–2050 (United Nations, 2018).

Among the world regions, Africa has the fastest urban population growth rate – 4% between 1950 and 1990 and around 3% since 1990 – due to high rates of natural increase and net rural to urban migration. In 1950, 19 million inhabitants lived in urban areas, in 2010, this number had risen to 294 million, in 2018 to 548 million, and in 2050, the UN projects that 1.5 billion people in sub-Saharan Africa will reside in urban areas, which accounts for 59% of the total population (United Nations, 2018). Exemplifying the rapidity of urban population growth is Ghana, which grew from five million in 1950 to 29 million in 2018, with the percentage of people living in urban areas increasing from 15% to 56% over the same period. In the United Republic of Tanzania, the population grew even more rapidly, from 7.7 million in 1950 to 59 million in 2018. The percentage of urban dwellers

increased from a mere 3% in 1950 to 34% in 2018, and Tanzania is projected to add 50 million more urban residents by 2050 (United Nations, 2018).

Together, India, China, and Nigeria are projected to add the largest number of new urban dwellers between 2018 and 2050, adding 416, 255, and 189 million urbanites respectively, and accounting for 37% of the overall increase in the global urban population. Seven other countries are expected to add 50 million urban inhabitants each: Tanzania, Ethiopia, the Democratic Republic of the Congo, Indonesia, Bangladesh, Pakistan, and the United States of America, thereby contributing another 20% in global urban growth (United Nations, 2018). Among the ten least urbanized countries in 2018, five were in sub-Saharan Africa: Burundi, Niger, Malawi, Rwanda, and South Sudan, each with urban populations below 18%. In Asia, Papua New Guinea, Sri Lanka, and Nepal still have less than 20% of their populations living in urban areas, however, urbanization is predicted to increase rapidly over the next three decades reaching between 25% and 32% by 2050 (United Nations, 2018).

Taking all these trends into account, by 2050, about 1.1 billion people will live in cities in high-income countries, whereas 5.6 billion people will live in urban areas of middle- and low-income countries, accounting for 83% of the world's urban population (United Nations, 2018).

## The Proliferation of Cities of All Sizes

Until the late twentieth century, the world's largest cities could be found in higher income countries, with Tokyo, Osaka, Mexico City, New York-Newark, and São Paulo accounting for the five largest urban agglomerations in the year 2000. Since then, rapid urbanization in Asia and Africa has changed this picture and today, the world's most populous cities include Delhi, Shanghai, Dhaka, and Cairo. Among mega-cities with populations exceeding ten million people, the majority are found in low- and middle-income countries of the world (United Nations, 2018). In

2018, the highest number of mega-cities could be found in China, six, followed by India, with five. By 2030, both countries are expected to add two more cities to this category. In Latin America, the cities of Bogota and Lima have recently joined Buenos Aires, Mexico City, Rio de Janeiro, and São Paulo in surpassing 10 million inhabitants (United Nations, 2018). The cities projected to add the greatest number of residents every year between 2018 and 2030 are Delhi (870,000), Kinshasa (730,000), Dhaka (700,000), and Shanghai (adding 600,000). By 2030, ten more cities are expected to exceed the ten million mark: two in Africa, seven in Asia, and one in Europe, and a total of 43 mega-cities will account for 730 million people worldwide. Among these, the number of meta-cities with 20 million inhabitants or more, is expected to increase from six to twelve (United Nations, 2018).

However, growth in cities of all sizes is occurring. In 2018, 12.5% of the world population lived in 33 mega-cities, most of them in Asia, and an equal percent are found in medium-sized cities with one to five million people. By contrast, cities of 500,000 to one million inhabitants accounted for 5% of the world population, those with 300,000–500,000 residents made up 4%, and urban areas with fewer than 300,000 inhabitants, represented 23% of the world's total population (United Nations, 2018). Considering the urban population alone, these figures suggest that 58% of urban residents live in cities and towns with less than one million inhabitants. The number of people living in medium-sized cities almost doubled between 1990 and 2018. By 2030 a further 28% growth is predicted, with the total mid-size city population growing from 926 million to 1.2 billion urban residents (United Nations, 2018).

These trends are exemplified in sub-Saharan Africa. While there were only two mega-cities in 2018, Lagos with about 13.5 million residents, and Kinshasa with about 13.2 million, by 2030, Dar es Salaam (Tanzania) and Luanda (Angola) will surpass a population of ten million. The number of large cities with populations between five and ten million in Africa is also expected to increase, from 5 in 2018 to 13 in 2030. In contrast, in 2018 almost half of the urban population

in Africa lived in towns and cities with fewer than 300,000 inhabitants, and 6% in 87 cities with 300,000–500,000 people (United Nations, 2018).

## Growing Geographic Inequities

Urban areas vary dramatically in terms of infrastructure, housing, and services available to their residents but in a manner that consistently discriminates against the health and well-being of the poorest. These disparities are particularly apparent in sub-Saharan Africa, where the assumption that urbanization brings economic growth and investment in infrastructure, has not been born out (Satterthwaite, 2017).

In low- and middle-income countries, the stark inequities produced by rapid urbanization are most visible in informal settlements, where low quality housing, crowding, threat of eviction, and multiple adverse exposures intersect to increase health risks in a context of limited access to quality health services (UN-Habitat, 2016a). Since 2000, many countries have prevented the formation of new slums or improved existing ones by upgrading non-durable or overcrowded housing, expanding access to water and sanitation, and moving millions of people out of informal settlements. By 2015, the proportion of people living in urban slums had fallen by 20% compared to 15 years earlier, from 28.4% of urban dwellers to 22.8% (United Nations, 2018; UN-Habitat, 2016a). Unfortunately, during the same period the overall number of people living in slums has increased from 807 million to 883 million, as cities in Asia and Africa scramble to provide adequate housing and services to their rapidly growing urban populations. At present, around a quarter of all urban residents live under slum conditions. This percentage is even higher in Asia and the Pacific (28%) and sub-Saharan Africa, where a staggering 59% of the urban population lives in informal settlements and slums, and where in several countries, including the Democratic Republic of the Congo, Madagascar, Niger, and Mozambique, this proportion is over 75% (UN-Habitat, 2016a). According to the Center for Strategic and International Studies, a U.S. Think Tank, the actual

numbers in Africa are likely to be much higher, as “*recent conflicts, climate change, and economic dislocation have pushed the number of refugees, internally displaced persons, and migrants to all-time highs*” (CSIS, 2020).

Every year, the number of people living in slum conditions grows by about six million, equivalent to an increase of about 16,500 slum dwellers daily. Many of the largest urban slums in developing regions are in areas prone to natural disasters such as riverbanks and low-elevation coastal zones. With the growing effects of climate change and increases in frequency and intensity of adverse climate events, this risk is likely to increase as is climate-related migration into these already fragile areas (United Nations, 2018; World Bank, 2018a).

The world’s largest slums include Khayelitsha in Cape Town (South Africa) with at least 400,000 inhabitants, Kibera in Nairobi (Kenya) which is home to 700,000 people, Dharavi in Mumbai (India) with one million residents, Ciudad Neza close to Mexico City with 1.2 million inhabitants, and Orangi Town in Karachi (Pakistan) with at least 2.4 million residents (UN-Habitat, 2016b). Most people living in informal settlements and slums reside in Eastern and South-Eastern Asia (332 million), Central and Southern Asia (197 million), and sub-Saharan Africa (189 million) (United Nations, 2018; UN-Habitat, 2016a). In Latin America and the Caribbean, the percentage of people living under slum conditions has continually decreased to about 21% of the population. While this trend is a positive development associated with regularization of informal housing, a fifth of the population continue to live under precarious conditions (UN-Habitat, 2016a).

## Urban Definitions and Implications

Urbanization refers both to a growing proportion of the population living in urban areas and to the increase in the number of urban residents. It describes changes in the size of cities and in the

total area occupied by urban settlements. Urbanization is also a complex social, cultural, and economic process that includes modifications in dominant lifestyle, occupations, culture, and behavior, altering the demographic and social structure of societies (United Nations, 2018).

Around the globe, there is no single definition on what a city is, and countries define what they consider a city or urban area differently, using several criteria, including administrative and economic criteria, population size and population density, and functional urban characteristics such as the existence of paved streets, water-supply systems, sewerage systems or electric lighting (United Nations, 2018). In less populated countries such as Norway or New Zealand, areas with 200 and 1000 people respectively are defined as urban areas. In Peru, settlements with more than 100 dwellings fall into the urban category, in Argentina areas with more than 2000 inhabitants, and in Senegal agglomerations of more than 10,000 people. In contrast, only settlements with more than 50,000 people are considered cities in Japan, and in China the definition depends largely on the number of people per square kilometer (sq. km) – in China’s case 1500 people (Galea et al., 2019).

In March 2020, the UN Statistical Commission adopted a universal definition of urbanization, endorsing the *Degree of Urbanization* as a recommended method for international comparisons (United Nations Statistical Commission, 2020). The *Degree of Urbanization* identifies three types of settlements:

1. Cities, which have a population of at least 50,000 inhabitants in contiguous dense grid cells (>1500 inhabitants per sq. km);
2. Towns and semi-dense areas, which have a population of at least 5000 inhabitants in contiguous grid cells with a density of at least 300 inhabitants per sq. km; and
3. Rural areas, which consist mostly of low-density grid cells.

According to the Commission, the methodology is meant to complement but not to replace national definitions of urban and rural areas.



The United Nations Human Settlements Program distinguishes between “cities proper”, delineated by political and administrative boundaries (e.g., Shanghai, China, with its 24 million inhabitants or Karachi, Pakistan with its 15 million residents), urban agglomerations, referring to a contiguous territory inhabited at urban levels of residential density, and metropolitan areas, referring to an urban agglomeration and surrounding areas at a lower settlement density but with strong economic and social linkages to the central city (United Nations, 2018; UN-Habitat, 2010). However, national governments use varying definitions and criteria to demarcate cities, urban agglomerations, and metropolitan areas. Population data are often reported for geographical areas determined by administrative boundaries that do not coincide with the urbanized land using other criteria. For instance, “cities-proper”, defined by political and administrative boundaries, may or may not include suburban areas, where most of the population in the metropolitan area resides, or even include some sparsely populated agricultural areas (United Nations, 2018).

Many of today’s largest urban areas include densely populated adjoining regions and agglomerations of cities governed by different local authorities, such as the mega-cities of Tokyo-Yokohama, New York-Newark, and Seoul-Incheon. Urban areas are continuously growing by mergers of adjacent towns and cities, creating new urban corridors, mega-regions or city-regions, such as China’s Hong Kong-Shenzhen-Guangzhou mega-region, which is home to 120 million people, or Japan’s Tokyo-Nagoya-Osaka-Kyoto-Kobe mega-region with a population of 60 million (Galea et al., 2019). Cities and urban areas differ remarkably regarding their population density, and today’s largest cities are all characterized by high population density, measured by the number of people living per square mile or sq. km. The most densely populated urban area in the world is Dhaka, Bangladesh, where an average of 44,500 people live in one sq. km, followed by cities such as Mumbai (30,000 people per sq. km), Karachi (19,000 people per sq. km), Lagos (18,000 people

per sq. km), Manila (10,600 people per sq. km), and Singapore (8300 people per sq. km) (Galea et al., 2019; City Mayors Foundation, 2020).

The highest urban population density is typically found in informal settlements or slums. The United Nations Human Settlement Program defines a slum household as one in which the inhabitants suffer one or more of the following ‘household deprivations’: lack of access to improved water source, lack of access to improved sanitation facilities, lack of sufficient living area, lack of housing durability, and lack of security of tenure (UN-Habitat, 2016a).

In Greater Mumbai, India for example, the percentage of people living in slums is estimated to be as high as 41.3%, meaning over nine million people living in slum households suffer from at least one of the above deprivations. According to the city’s last official census in 2011, the largest slum in Mumbai, Dharavi, was home to an estimated one million people. Dharavi, with an area of only 535 acres, had an estimated population density of 869,565 people per square mile and has only grown since – the next census in 2021 will reveal by how much (World Population Review, 2020).

In addition to high population density, urban sprawl and sub-urbanization are common features of contemporary urbanization. Often provoked by lack of affordable housing, the spread of populations to lower-density adjacent rural areas is ubiquitous in low- and middle-income countries (LMIC) cities. These peri-urban areas are often inadequately provisioned with infrastructure and services, presenting further challenges to the health and well being of residents (Galea et al., 2019).

As these examples show, definitions and criteria to distinguish between urban, peri-urban, and rural areas, and between cities, urban agglomerations, and metropolitan areas vary across and even within countries. Cities and urban areas can be defined alternatively by governance role, population size or density, geographic limits, and other criteria, making comparisons between cities and urban areas difficult.

Further complicating the discussion of population and health policies in urban areas is the fact

that many countries and cities do not collect urban specific, disaggregated data, and in many countries, national census data is the only data source available, as vital registration systems in cities are mostly lacking. In LMICs, Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) are often the best source of information for nationally representative data on certain health conditions. But the information gained from periodic surveys are insufficiently urban-specific to adequately assess health and population dynamics and their spatial distributions (e.g., by neighborhood, or slum vs. non-slum areas). On average, urban populations of poor countries have lower levels of child mortality than rural populations and better health indicators, sometimes referred to as the “urban health advantage” (Galea et al., 2019). However, urban health averages mask wide socioeconomic differentials and, if these are disaggregated, it becomes clear that the urban poor face health risks that are as severe as those of rural populations and sometimes worse (Satterthwaite, 2017). In Bangladesh, for instance, the rate of stunting or chronic malnutrition among under-five children in urban areas is 31%, compared to a rural average of 38%. But when urban figures are disaggregated, over 50% of children are stunted in slums compared to 33% in non-slum areas (BDHS, 2016; BUHS, 2015).

In recent years, technological advances have created new opportunities through remotely sensed images (e.g., Google Earth, Landsat imagery, etc.), which enable better visualization of the peripheries of larger cities where much of the urban growth takes place. A combination of spatial and census data can, for example, be useful to address climate change or flooding predictions, as well as service needs in informal settlements and urban slums. According to the United Nations Settlement Programme, “*the world’s future development framework and the current trend in technological developments offer a chance for the global network of urban managers, practitioners and communities to collectively set up broad urban data systems, exploring feasible mechanisms at national, local and community levels to perform this task*” (UN-Habitat, 2016a: 26).

## Managing Urban Growth

### Rapid Urbanization and Its Policy Implications

Rapid urbanization in low- and lower middle-income countries poses great challenges for sustainable development efforts at national and global levels. Successful management of urban growth, which improves the quality of life of all urban residents, is paramount to reach the Sustainable Development Goals (SDGs) in 2030 (United Nations, 2018). If successfully and strategically managed, urbanization has the potential to drive economic productivity and increase the quality of life (Cartwright et al., 2018). However, in many LMICs, governments lack the capacity to create an environment that fulfills the basic needs of their citizens (Satterthwaite, 2017). In fact, in sub-Saharan Africa, one of the regions with the fastest rates of urban population growth, city development depends on the efforts and funding of national governments and international organizations. To date, these stakeholders have given low priority to urban initiatives, still focusing much of their attention on rural development. These rural biased priorities are exemplified in the fact that in many sub-Saharan African cities, a large proportion of the urban population has limited access to basic water and sanitation, healthcare, and education services. In these settings, the lack of basic infrastructure deters the private investment on which local governments depend to fund the improvement of basic services. A consequence is the continued neglect of slums and informal settlements where up to 60% of urban citizens reside (Satterthwaite, 2017).

To flourish, cities need to create suitable employment opportunities, enable equitable access to quality housing, and provide social services and infrastructure for water and sanitation, transport, communication, and energy. Sustainable urbanization requires adequate income generation for urban governance, which allows for poverty reduction and economic growth, while at the same time ensuring environmental protection and adaptation to climate change (United Nations, 2018).

To assure that all urban residents can live healthy lives and share the benefits of urbanization, inclusive policies to manage sustainable urban growth are necessary, including equitable population and health policies. These policies must address the needs of all urban residents, with special attention to urban poor and other vulnerable groups, including women, youth, older persons, and people with disabilities (United Nations, 2018). LMICs are more affected by the negative implications of rapid and uncontrolled urbanization because they are less equipped to address these emerging issues (Hurt, 2019). Preventive actions are therefore critical.

According to the New Urban Agenda (NUA) agreed upon at the UN Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador in October 2016, the most urgent needs of urban dwellers include equal access to services, property rights and political participation for women, education and employment opportunities for young people, policies to promote healthy aging and accessible housing, public infrastructure, and transport (United Nations, 2017). Clearly, policies that enable the active participation of women, youth, the elderly, people with disabilities, the urban poor, and indigenous populations in a city's economic, social, and cultural development, are a powerful instrument to achieve sustainable urbanization (United Nations, 2017). Yet at the same time, countries must strive for integrated policies to improve the lives of urban as well as rural residents and to strengthen the economic, social, and environmental relationships between cities and rural regions (United Nations, 2018; Nwanegbo, 2019).

The New Urban Agenda aims at achieving a new urban paradigm through the adoption of policies, strategies, and actions that have “*sustainable, people-centered, age- and gender-responsive and integrated approaches to urban and territorial development*” (United Nations, 2017: 8). Born out of these principles, National Urban Policies (NUPs) aim to facilitate collaboration between the different levels of government, traditional authorities, donors, organizations from the public and private sector as well as from civil

society, during urban transition (Cartwright et al., 2018). NUPs are intended to promote effective decision-making by balancing power and responsibilities across different key stakeholders. However, the success of NUPs in achieving strategic urban planning that leads to economic and social benefits depends on their capacity to reflect the context of each country and adapt to the lived realities of urban growth. In Africa, 18 countries have adopted NUPs. However, their implementation has been challenged by a lack of capacity, legal frameworks, funding, and political will (Cartwright et al., 2018). In the Asia-Pacific Region, out of 21 countries that were evaluated in terms of their national urban policies and plans, only thirteen were implementing NUPs, while the rest were still in the policy formulation phase (UN-Habitat, 2016b).

Sensible population and health policies at national, regional, and local levels can help to mitigate the negative effects of rapid urbanization and ensure that rapid urban population growth leads to improvements in the health, productivity, and quality of life of urban residents, particularly in the rapidly expanding cities of Africa and Asia (Cartwright et al., 2018). However, to achieve an “urbanization dividend” where rapid growth of urban populations simultaneously leads to economic and human development, effective and accountable multi-level governance is required (Cartwright et al., 2018). Unfortunately, the weakened state of urban governance structures, capacities, and financial resources in LMICs globally, has resulted in cities struggling to adapt to the most pressing challenges of our times, including migration, climate change, a fragile global economy, and pandemic threats such as the current COVID-19 crisis (da Cruz et al., 2019).

### **Who Is in Charge?**

Urban governance is notoriously complex and involves multiple national, sub-national, and local level authorities with often contested authority. In many LMICs, governance arrangements are the legacies of colonial governments and a

largely rural past when strong centralized power structures were located at the national level. In the case of Asia, where half of the world's urban population resides, a blurring of urban-rural administrative boundaries accompanying unplanned urbanization poses further challenges to urban governance.

In fast growing cities, the paucity of well-resourced local governance capacity has hindered planning and accountability, and provoked inefficiencies, blind spots, and massive socioeconomic and health inequities between rich and poor. An analysis of the governance landscape of 127 cities from all continents by the London School of Economics (see <https://urbangovernance.net/en/>, accessed on March 8, 2021), reveals a common pattern of weak municipal political and legal authority, and limited jurisdiction over issues that are critical to urban growth and population health such as transport and infrastructure.

In sub-Saharan Africa, weak governance capacities within urban areas are diminished by tensions between different levels of government, and further exacerbated by pressures from development organizations, and traditional authority figures (Resnick, 2014). Additionally, the mandates of different levels of government are not always clear (Cartwright et al., 2018), and situations of contested authority or responsibility are common (Parnell & Oldfield, 2014). For instance, issues such as the development of policies and legal frameworks, the stewardship of water basins, power grids, and the maintenance of intercity transport routes are typically overseen by national governments (Cartwright et al., 2018), while responsibility for housing, land allocation, solid waste management, and city transport services is generally born by local government. However, given the dependence of each mandate on the other, collaboration between local and national levels of government is crucial (Cartwright et al., 2018). To this end, the New Urban Agenda calls for more effective multi-level governance as key to strategic urban development (United Nations, 2017; Cartwright et al., 2018). However, in LMICs, massive challenges include the continued centralization of power and budgets at national and sub-national levels, the persistent

lack of institutional and human capacity at the local level, prevailing accountability issues related to public-private partnerships, and the absence of effective vertical integration between local, sub-national, and national levels (MISTRA 2<sup>nd</sup> Annual Lecture, 2017).

The paucity of effective governance is even more acute in newly urbanized settings. As rural areas develop, they go through different stages along the rural-urban continuum. This is exemplified by the development of Emerging Urban Centres (EUCs) in Tanzania. The term EUC is used when a region experiences a type of settlement growth that is not directly related to existing urban centers (Lazaro et al., 2019). Their emergence is influenced by local factors, such as agricultural value-chain dynamics that promote employment opportunities and by external factors like global trade and production dynamics that influence local markets (Guin, 2018).

The continually evolving character of EUCs as they move along this rural to urban continuum poses a further challenge as administrative arrangements must change to fit new urban realities. This complicates the definition of roles and responsibilities and places pressure on new cities to find economic and human resources to meet the infrastructure and population health needs of their growing population (Lazaro et al., 2019).

## Strategic Urban Planning

In the absence of effective urban governance, unmanaged urbanization is often accompanied by rising levels of poverty and socioeconomic disparities, and adverse population health and environmental impacts (UN-Habitat, 2010). These adverse impacts are particularly apparent in capital cities, which serve as major hubs of economic activity and growth in LMICs. Accordingly, many countries are embracing new urban agendas that involve development approaches that seek to redirect and redistribute the economic benefits of urbanization beyond the capital city (Marais & Cloete, 2017). Efforts to de-concentrate population vary in strategy

including relocating capitals, making other cities attractive to rural migrants, or by improving the quality of life in rural areas. The potential of secondary cities as alternative destinations for capital investment is also widely recognized (Otiso, 2005; Marais & Cloete, 2017; Nwanegbo, 2019).

### Capital City Relocation

Capital cities function as important hubs of economic growth and cultural activity. They also experience tremendous pressures related to population density, including issues of inadequate infrastructure, social and cultural integration, and air and water pollution. Aiming to alleviate these pressures, some governments have moved their capital to a different city or have even created new urban centers from the drawing board, to spread more equitably the economic benefits of urbanization (Alwehab & Juvara, 2018). As noted in Box 18.1, these massive urban planning efforts are often accompanied by challenges.

#### Box 18.1: Challenges in Capital City Relocation in LMICs

##### Tanzania: From Dar es Salaam to Dodoma

In 1973, Tanzania's founding president Mwalimu Julius Nyerere decided to move the capital city from Dar es Salaam to Dodoma, which, since 1996, has been the official capital of the country (Alwehab & Juvara, 2018). Dodoma was envisaged as a nation-building project to cement its post-colonial identity. The urban planning vision included elements that were forward-thinking and environmentally sensitive. The initial plan aimed to design a non-monumental city and to avoid excessive population densities, pollution, and traffic congestion. However, insufficient funding was allocated to the implementation of this plan and necessary political will was lacking. As a result, the urban development plan had to be adapted to the

economic, cultural, and environmental realities of Dodoma. Since 1988, the revised plan has been slowly implemented without much enthusiasm from the political, commercial, and industrial sectors (Alwehab & Juvara, 2018).

The election of President John Magufuli in 2015 created a new push to finally make Dodoma the country's seat of government. In 2018, Dodoma, was elevated to city status, and in 2017, the country's prime minister, Kassim Majaliwa, followed by several ministries and the vice president, moved to Dodoma. In October 2019, President Magufuli finally announced that he had shifted his presidential base from Dar es Salaam to Dodoma, signifying that the entire Tanzanian government was now represented in the new capital. The city has grown from its original 40,000 inhabitants in the 1970s, to almost 500,000 residents today. Investments into new roads, a new airport, and a modern rail line from Dar es Salaam to Dodoma are underway, and the city hosts several private and public universities, including the University of Dodoma with 35,000 students. However, to date much of the initial design never came to fruition, critical infrastructure and services are still lacking, and Dar es Salaam with its six million residents remains the uncontested commercial center and *de facto* capital of Tanzania, projected to grow to ten million inhabitants by 2030 (Africanews, 2019: see <https://www.africanews.com/2019/10/15/magufuli-moves-to-tanzania-s-new-capital-dodoma>, accessed on March 8, 2021; Beeckmans, 2018; National Geographic Magazine, 2019).

##### Nigeria: From Lagos to Abuja

In 1980, the Nigerian government made a declaration to erect a new capital city. The main reason behind this decision was that Lagos, the former capital city, was experiencing uncontrolled population

(continued)

**Box 18.1** (continued)

growth leading to land-use problems (Alwehab & Juvara, 2018). In 1991, centrally located Abuja, built as a planned city in the 1980s, was selected as the new capital city and its urban design included the creation of various public spaces that integrated fundamental functions, such as housing, transportation, commerce, industry, and recreation (Ikoku, 2004). In 1991, the city of Abuja had a population of about 364,000, and by 2020 Abuja was estimated to be home to 3.278 million people, making it Nigeria's fourth largest city after Lagos (14.37 million), Kano (3.999 million), and Ibadan (3.552 million). Although Abuja's development was slow at first, population growth has accelerated and since becoming the capital, the city has experienced an annual growth rate between 6% and 10% (United Nations, 2019).

**Malaysia: From Kuala Lumpur to Putrajaya**

With the goal of relieving the high demand for urban land in Kuala Lumpur, the Malaysian government decided in 1993 to relocate the capital city to Putrajaya (Alwehab & Juvara, 2018). The goal was to build a well-designed new capital city that promotes higher performance and efficiency in the governmental and civil service sectors while maintaining good quality environmental and living conditions for the dwellers of Kuala Lumpur (Alwehab & Juvara, 2018). The Putrajaya capital project used a concept of "Intelligent Garden City" and has been recognized as a model of sustainable urban planning (Marchettini et al., 2004). Green open space makes up a big proportion of the spatial dimension of Putrajaya and the city has a functional and sustainable distribution of land use (Alwehab & Juvara, 2018).

**Myanmar: From Yangon to Nay Pyi Taw**

In the past decades, Myanmar has been experiencing rapid urbanization, with an annual rate that ranks fourth among all the countries in Southeast Asia (CIA, 2017). The decision to move the capital city from Yangon to Nay Pyi Taw was made aiming to alleviate population pressure in Yangon resulting from rapid urbanization (Wang et al., 2018). Construction started in 2002 and was completed by 2012. In 2006, the new city became the official capital of Myanmar and its total built-up area already far exceeds the one in Yangon (Wang et al., 2018). However, the total population in Yangon is almost seven times (Ministry of Immigration and Population, 2015b) the population of Nay Pyi Taw (Ministry of Immigration and Population, 2015a). Relocation of the capital has not brought expected levels of economic development or population migration (Wang et al., 2018), especially among the diplomatic and international business community. The capital is seen as lacking facilities such as international healthcare, residential housing, and convenient transport arrangements (Kyaw Soe Htet, 2019). As a result, Yangon remains the most populated area of Myanmar and the economic center of the country (Wang et al., 2018). In addition, evidence shows that population pressure is the main reason behind this phenomenon in Yangon, suggesting that the relocation of the capital city did not achieve its purpose but instead lead to environmental deterioration within and around both cities (Wang et al., 2018).

**Secondary City Planning**

Population, size, function, and economic status all play a role in the definition of secondary cities. Secondary cities have been described by Roberts and Hohmann (2014) as cities with 10–50% of

the population of a country's largest city and that have an important governance, logistical, and production function in the country. In 2014, there were 2400 cities that met this definition, and two-thirds of them were in Africa and Asia (Roberts & Hohmann, 2014).

Because most public resources tend to be devoted to the largest city of a country, many secondary cities face challenges of unemployment, poverty, and incapacity to manage rapid urbanization (Roberts & Hohmann, 2014). For instance, in Africa, the potential advantages of urban population growth are usually hampered by structural issues, such as the inability to provide basic services, combined with a weak climate for investment and a less educated or skilled workforce (Satterthwaite, 2017). A further challenge is that secondary cities usually lack the necessary data regarding their economy, land use, infrastructure, and governance that are needed to make evidence-based decisions regarding urban development (Roberts & Hohmann, 2014).

Exemplifying these challenges, an analysis of 21 municipalities in South Africa (Marais & Cloete, 2017) suggested that secondary cities play a dual mediating role as they are deeply interlinked with rural areas as well as larger urban areas, and simultaneously supply goods and services to both. These researchers found that the urban population increase in some of these cities was associated with employment increase leading to economic growth. However, findings also suggested that the development of some South African cities was dependent on a dominant economic sector, such as mining, putting their long-term economic sustainability at risk (Marais & Cloete, 2017).

Urban planning initiatives that aim at achieving sustainability and building resilience need to target the most vulnerable, implement coordinated national and local policies, and mobilize urban communities as well as key stakeholders. The decentralization and strengthening of local authorities are necessary to achieve local revenue generation and investment capacity that is sufficient to respond to rapid urban growth (United Nations, 2016).

## Key Urban Population Policies

Countries across the world face different opportunities and challenges related to urbanization, depending on their level of socioeconomic development and the stage of their demographic transition. Whereas natural demographic growth and high fertility rates in urban and peri-urban areas are characteristic of rapid urbanization in much of Africa, other regions are faced with economic migration of a working-age labor force from rural areas and the aging of their urban populations (Siba, 2019).

The New Urban Agenda (United Nations, 2017) and Sustainable Development Goal 11 on sustainable cities and communities (United Nations, 2015) call for inclusive urbanization and poverty reduction, urban economic development and prosperity, and environmentally sustainable and resilient development for all. The NUA specifically addresses challenges faced by women and youth and promotes direct and indirect actions and reforms to harness the demographic dividend, including the promotion of universal access to sexual and reproductive health services, and increasing economic productivity through better and more equitable access to education, skills development, and employment – particularly for women and girls (Siba, 2019).

## Family Planning

Access to safe, voluntary family planning is a human right and key to reducing worldwide poverty. It is also a critical step to ensuring universal access to sexual and reproductive health services and rights by 2030, as described in Sustainable Development Goals 3 and 5.

Although family planning is crucial to achieving gender equality and economic prosperity, in 2019, an estimated 217 million women in developing regions who wanted to prevent or delay pregnancy, were not using safe and effective family planning methods. In fact, according to the UN Population Division's 2020 estimates, in the previous year, 171 million women wanted to

avoid pregnancy but were not using any form of contraception. Poorer women, adolescents, unmarried women, rural populations, sex workers, and people living with HIV, as well as the urban poor are facing the greatest barriers to family planning due to prevailing misconceptions and stigma, as well as structural barriers such as underfunded and weak health systems and supply chain issues (UNFPA, 2020a).

Although family planning programs (FP) have long been considered a highly effective and important tool in population policy, a specific focus on urban areas in low-income countries has largely been lacking, even though family planning is one of the most cost-effective instruments to reduce urban poverty and improve population health (Allen, 2007; Cates, 2010; United Nations, 2017). Some successful – albeit sometimes controversial – examples from middle-income countries include Singapore, Iran, the Philippines, and Thailand (World Bank, 2020). However, family planning policies can yield unexpected results. In the mid-1960s, Singapore's total fertility rate (TFR) was 4.5 births per woman leading the government to initiate an anti-natal campaign, which included public advertising for small family sizes, legalizing abortion, encouraging sterilization, and giving economic incentives such as paid maternity leave for women who became sterilized after their third child (Hashmi & Mok, 2013). By 1987, Singapore's TFR had dropped dramatically to only 1.62 births per woman, which resulted in a complete reversal of government policies toward a pronatalist approach, which has been pursued ever since, however with limited success, as the TFR has continued to progressively decline to 1.14 births per woman in 2019 (World Bank, 2020).

One negative effect of the trend towards smaller families, which is especially pronounced in urban areas and in countries with family planning policies aimed at a maximum family size of one or two children, is an increase in skewed sex ratios at birth, influenced by gender-biased sex selection (UNFPA, 2020c). China and India account for about 90–95% of the estimated

1.2 million to 1.5 million missing female births annually worldwide due to gender-biased (prenatal) sex selection (Bongaarts & Guilmoto, 2015). Reasons underlying these gender biased trends are complex. According to economist Seema Jayachandran, *“as couples’ desired family size gets smaller, for example because of a higher female wage which raises the opportunity cost of having children, they are more likely to resort to sex-selective abortions to obtain their desired son. The conceptual upshot is that the sex ratio is not a measure of son preference per se; it is the realization of one’s son preference combined with one’s family-size preference”* (Jayachandran, 2014: 20). Given these cultural complexities, gender-progressive policies are needed to speed up gender equality, including policy approaches to change women's legal rights, financial incentives, and gender views (Jayachandran, 2014).

Based on the premise that sustainable urban development and poverty reduction are intricately linked to family size, the Bill & Melinda Gates Foundation launched in 2009 the Urban Reproductive Health Initiative (URHI) in selected cities in India (Uttar Pradesh), Nigeria, Senegal, and Kenya. Further emboldened by the goal to empower 120 million more women and adolescent girls to use modern contraceptives by 2020 set at the 2012 London Summit on Family Planning, URHI has contributed to this objective by successfully addressing the low contraceptive prevalence rate (CPR) among urban women, and particularly the urban poor (Krenn et al., 2014; Keyonzo et al., 2015; Benson et al., 2018; Winston et al., 2018).

Common elements of urban programs under URHI included comprehensive supply and demand interventions to improve the quality of family planning services; integration of family planning into maternal and child health and HIV services; wide-ranging activities to increase contraceptive demand; engaging the private sector in the provision of contraceptives; and strengthening government commitment to family planning (Nanda et al., 2011) (see Box 18.2).



**Box 18.2: Urban Programs Under the Urban Reproductive Health Initiative (URHI)**

**Nigeria:** Prior to program activities in urban Nigeria, contraceptive prevalence was very low in the cities of Abuja, Ibadan, Ilorin, and Kaduna despite the wide availability of contraceptive services (Krenn et al., 2014). Over the period 2009–2015, the Nigerian Urban Reproductive Health Initiative (NURHI), launched supply, demand, and advocacy interventions aiming to increase demand for family planning by changing the norms surrounding contraceptive use. The program successfully increased social approval as well as accurate knowledge about contraceptives, on the user as well as the provider side, and use of modern contraceptives increased in each city, varying from 2.3 to 15.5 percentage points (Krenn et al., 2014). Particularly noteworthy is the fact that use of modern methods increased substantially among the poorest wealth quintiles, on average, by 8.4 percentage points. Project exposure had a positive dose-response relationship and women who had been exposed to more of the program’s activities were much more likely to use contraception (43.4% vs. 19.1%). The program’s use of mobile service delivery to improve access to clinical methods in slums was particularly effective (Krenn et al., 2014).

**Kenya:** The Tupange Program (2010–2015)<sup>1</sup> was specifically designed to improve family planning service delivery and community awareness in urban slums, initially in Kenya’s three biggest cities Nairobi, Kisumu, and Mombasa, and later also in two smaller towns, for a total coverage of 4.4 million people (Keyonzo et al., 2015). At the time

the program was initiated, Kenya’s national health efforts were mainly focused on access to HIV and primary health services in rural areas and the family planning needs of the urban poor were not being adequately addressed, despite rapid urbanization (Keyonzo et al., 2015). Like the Nigerian program, Tupange sought to improve access to quality family planning services through a mix of interventions, covering training and education of medical staff, scale-up of facility-based and integrated outreach services as well as demand creation through community edutainment, media outreach, and social franchising (Keyonzo et al., 2015). Since 2010, Kenya’s government has shifted significant political and budgetary authority from the national and provincial levels to newly created counties, making the financing and management of health services, including family planning, their responsibility (Keyonzo et al., 2015). Working in this new context of devolution (decentralization), Tupange emphasized government leadership, ownership, and coordination of the interventions. According to Tupange’s leaders, “(a)s capacity was built, responsibilities became increasingly decentralized, enabling efficiencies not previously envisioned” (Keyonzo et al., 2015: 105). After 5 years of implementation, there were large city-wide increases in contraceptive prevalence among women aged 15–49, a rise in the number of new family planning users, and an increase in the use of long acting and permanent methods (Keyonzo et al., 2015). In Nairobi for instance, modern CPR among the urban poor (two lowest quintiles) went up from 41.2% to 59.8%, in Mombasa from 26.4% to 43.5%, in Kisumu from 46.0% to 60.4%, in Kakamega from 46.8% to 61.7%, and in Machakos from 47.6% to 63.9%. The number of permanent method users went up significantly in all five cities, increasing by between 82% in Kisumu, to over 400% in Nairobi. Overall, there was a

<sup>1</sup> Tupange was led by JHPIEGO, an international NGO associated with Johns Hopkins University, in collaboration with the National Council of Population and Development (NCPD) and several other partner organizations.

(continued)

**Box 18.2** (continued)

52% increase in new family planning users in all five cities (Keyonzo et al., 2015).

**Senegal:** Experiences of the Senegalese Urban Health Initiative, known in Senegal as *l'Initiative Sénégalaise de Santé Urbaine* (ISSU in French), echo many of the lessons and successes of its Nigerian and Kenyan sister programs. In conjunction with the Ministry of Health's Division of Reproductive Health and other partners, the program aimed at increasing access to quality family planning and reproductive health services for the urban poor, particularly in Senegal's capital Dakar. According to the Senegalese Demographic and Health Survey (DHS), only 12% of married women used a modern contraceptive method in 2010, much lower than in Kenya and Nigeria (Sidze et al., 2014). The program used a mix of supply- and demand side interventions, including community-based behavior change communication and advocacy among religious leaders, and aimed at creating a policy environment that makes family planning products and services more accessible and acceptable for urban women (Winston et al., 2018). Between 2011 and 2015, modern contraceptive use in the three urban districts covered by the ISSU increased from 16.9% to 22.1% with a slightly larger increase among the poor from 16.6% to 24.1% (Benson et al., 2018).

**India:** The Urban Health Initiative (UHI) was designed to complement the Government of India's family planning strategies for urban poor populations (Government of India, 2014), with the intention to thus be sustainable and scalable beyond the program's duration from 2009 to 2015 (Achyut et al., 2016). The UHI focused on the six cities of Agra, Aligarh, Allahabad, Gorakhpur, Moradabad, and Varanasi, where use of a modern family planning methods at the start of the program ranged from 38% of women in Aligarh to 53% in

Varanasi, with even wider disparities among socioeconomic classes. In Aligarh, for instance, only 27% of the poorest women used modern contraceptives, as compared with 50% of the richest women in the same city (Nanda et al., 2011). After 4 years of implementation, the impact evaluation showed that 25% of women changed their behavior, with 15% of women becoming modern method users (Achyut et al., 2016).

Comparative analysis also revealed that different program elements were more successful in some contexts than in others, and that exposure to more activities increased women's likelihood of using contraception. Demand generation activities that were significantly associated with increased use of modern contraceptives included community outreach through home visits and group discussions, local radio programming, and branded slogans and print materials distributed widely across the cities. In India and Nigeria, TV programs had a positive impact on contraceptive uptake as well (Speizer et al., 2014; Winston et al., 2018).

Based on 5 years of program experience, UHRI demonstrated that targeted, multi-component supply- and demand-side programming can have significant impact on modern contraceptive use among urban women and particularly among the urban poor (Speizer et al., 2014; Winston et al., 2018). Important lessons were generated on how to design sustainable and scalable family planning strategies for rapidly growing urban environments in other cities and countries, where increases in modern contraceptive use among urban women are crucial in meeting international family planning targets, the goals of the New Urban Agenda, as well as the SDGs (Achyut et al., 2016; Speizer et al., 2014; Winston et al., 2018; Siba, 2019; United Nations, 2015).

But family planning and sexual and reproductive health programming remain susceptible to disruption, due to the vagaries of party politics

and pandemics. Since early 2020, the COVID-19 pandemic has disrupted family planning supply chains, and the delivery of contraceptives and sexual and reproductive health services around the globe. In the words of UNFPA's Executive Director, Dr. Natalia Kanem, "*(t)he pandemic is deepening inequalities, and millions more women and girls now risk losing the ability to plan their families and protect their bodies and their health*" (UNFPA, 2020b).

An August 2020 survey by WHO found that family planning and contraception are among the most frequently disrupted health services, with seven in ten countries experiencing disruptions (WHO, 2020). At the same time, UNFPA estimated that 6 months of movement restrictions and major disruptions to health services could leave 47 million women in LMICs unable to use modern contraceptives, resulting in seven million additional unintended pregnancies – many of them among poor, urban women (UNFPA, 2020b).

## Youth

A discussion of population and health policies in urban areas would be incomplete without addressing the largest population group in the cities of the global South, namely the children and young people under the age of 24. In Africa, for instance, 50% of the population are under the age of 19 and by 2035, the continent will be predominantly urban. Continuously high fertility rates in urban areas, as well as youth-dominated labor migration from rural to urban areas make it imperative that cities acknowledge and invest in their urban youth for societies to reap the benefits of their demographic transition (Siba, 2019). The New Urban Agenda specifically addresses the central role of youth in sustainable development, committing to "*harnessing the urban demographic dividend, where applicable, and to promoting access for youth to education, skill development, and employment to achieve increased productivity and shared prosperity in cities and human settlements*" (United Nations, 2017: 18).

Young people in Africa, the Middle East, and South Asia are looking for opportunities in their countries' cities, hoping to find employment, education, and socioeconomic mobility. The challenge of a rapidly growing young population is especially great in Africa's cities, where youth under 24 years of age make up most of the urban poor, and in 2019, about 21% of youth were neither in education, employment, or training (15.7% of males and 25.7% of females). Whereas about 25% of the working age population is between 15 and 24 years old, young people account for almost 50% of the world's unemployment, leading to a sense of uselessness, disillusionment, and social exclusion. Youth from poor families and young women are particularly disadvantaged (Refstie & Silva, 2012; Siba, 2019; ILO, 2020). With 70% of African urbanites living under slum conditions, and two out of three urban residents earning a living in the informal economy, finding formal sector work can be especially daunting for urban youth, as many young people lack the required skills and qualifications for the few formal sector jobs available (Sommers, 2010).

According to the global Cities Alliance partnership, many cities, particularly in developing regions, are "*ill-prepared to provide improved governance, meaningful representation, or economic and social roles for their youthful populations*" (Refstie & Silva, 2012: 8). As Marc Sommers describes in his study of urban youth in Africa, "*(m)unicipal governments may be weak, overrun and even hapless for any number of reasons, and generally depend heavily on some combination of donor and NGO ideas, monies and private sector partnerships. Their coordination of such efforts ranges between loose and non-existent. Public sector provision for basic necessities is, in general, minimal and likely favour the wealthy*" (Sommers, 2010: 319).

Countries that have successfully completed their demographic transition and were able to harness the demographic dividend have all made substantial human capital investments in youth, women, and children, ranging from interventions to reduce fertility and child mortality, to improvements in education, skills development,

and youth employment. Female participation in schooling and the labor market are crucial in this regard (Siba, 2019). Much of Africa, however, faces daunting challenges in realizing benefits from its youth bulge due to the economic, social, and political marginalization of its young people. A significant proportion of youth in Africa are poorly educated and trapped in structural unemployment. But even for the better educated, it is difficult to find adequate jobs and opportunities in the continent's cities. Due to a misalignment of skills and the lack of formal sector employment, many youths end up in unskilled, insecure, and unsafe jobs, "*trapped in a circle of working poverty*" (ILO, 2010: 2; Siba, 2019; Nwanegbo, 2019).

In her 2016 study on urban youth in Arusha, Tanzania, Nicola Banks describes the many barriers young people face in their search for livelihoods, and how urban poverty creates insurmountable constraints for youth agency. For most young people in Arusha, the transition from school to work is characterized by a long period of under- or unemployment, which has a negative effect on their ability to become self-sustaining and independent from their parental households. Apart from the severe economic implications of this reality, the young people surveyed in the study describe how the lack of opportunities also prevents progress in their social lives, including the ability to get married or pursue higher education. Their inability to secure stable employment leads to their exclusion from decision-making and participation in the household and the wider community, resulting in long-term negative consequences for their happiness, self-esteem, and well-being (Banks, 2016). According to Banks, "*(t)he experience of poverty prevents young people from developing self-confidence and the capacity to aspire, and their dampened hopes and aspirations were starkly visible across focus groups and interviews*" (Banks, 2016: 449). This inability to "imagine a future" was especially prevalent among young urban men as societal expectations put more pressure on them to become economically self-reliant before starting a family of their own. Although young women faced additional vulnerabilities

related to their sexual and reproductive health, including exposure to HIV, early pregnancy, transactional sex, and sexual violence, they were more likely to envision a positive future for themselves due to the hope that their lives might improve after marriage (Banks, 2016).

The grim realities low-income urban youth face in Arusha are like the challenges young people face all over the continent and show how economic, social, cultural, and political factors shape their development, including their expectations, aspirations, resilience, and trajectories (Banks, 2016). According to Sommers, the situation of young people in Africa's cities "*is informed by a powerful irony: urban youth are a demographic majority that sees itself as an excluded minority. Being out of school and unemployed or in and out of work invites perceptions of young people as derelicts, thieves, and prostitutes. Such titles are markers of exclusion and generators of profound social distance*" (Sommers, 2010: 324).

What can cities do to counter these negative trends and have a lasting, positive impact on the lives of marginalized urban youth? The New Urban Agenda and the African Union's Agenda 2063 (particularly Aspiration 6 on advancing people-driven development and unleashing the potential of women and youth) call for much greater investment in young people's health and well-being (including universal access to family planning and sexual and reproductive health services), quality education, skills training, access to technology, capital, and job opportunities. Addressing the existing mismatch in skills and fostering stronger links between labor markets and industries will be essential to counter the current trend of massive youth unemployment in Africa's cities (Siba, 2019). In addition to these crucial investments, the African Union's roadmap for harnessing youth potential also highlights the rights and empowerment of youth as a critical dimension (African Union, 2017). Article 12 of the Convention on the Rights of the Child states that young people "*have the right to participate in decision-making processes that may be relevant in their lives and to influence decisions taken in their regard*". Yet, children and youth, who form

the majority of the urban population, are largely absent in decision-making processes, and most youth, except for a small group of mostly male, elite youth, do not participate in civil society (Sommers, 2007; Refstie & Silva, 2012). According to Sommers, “(t)he civil society dominated by educated elites may have, at best, tenuous connections to the out of school, marginalized and under-represented urban youth majority, with devastating results for youth access to services, jobs and acceptance” (Sommers, 2010: 324).

During a 2017 UN conference on “The New Urban Agenda and Demographic Dividend: Investment’s for Africa’s Youth,” in Dakar, Senegal, participants called for mainstreaming a youth empowerment agenda into various structural transformations and sustainable urban development agendas (Siba, 2019). Urban decision makers need to invest in children and youth at an early stage and consider young people no longer only as beneficiaries but as key partners and agents of change, especially marginalized and female youth. According to the Cities Alliance partnership, youth should be allowed to lead and participate in urban policy discussions and program design, contribute to baseline assessments, community mapping, and program implementation, including monitoring and evaluation (Refstie & Silva, 2012). The African Union stresses the rights of youth to fully participate in electoral and governance processes and calls on national and local policymakers to integrate governance on education curricula, institute youth leadership and empowerment training programs, and strengthen independent youth formations, networks, and organizations (African Union, 2017).

With this goal in mind, national and local governments must work hand in hand to create urban employment and entrepreneurship programs by investing in sectors with job-multiplier effects, providing better support for youth entrepreneurs (e.g., business and entrepreneurship training, access to credit, national and regional youth funds, government procurement), increasing access to internship

opportunities, and expanding demand-driven technical and vocational training as well as inclusive access to alternative education for out of school youth (African Union, 2017; World Bank, 2017). A renewed focus on quality secondary and higher education, particularly in science, technology, engineering, and mathematics will be crucial to address the current mismatch in skills and make Africa’s youth competitive in the global marketplace (World Bank, 2017). At the same time, local governments need to prioritize child health, nutrition, and early childhood education, as the development of universal foundational skills, including cognitive, socio-emotional skills, will be imperative to prepare Africa’s children and youth for the future (World Bank, 2017).

Growing up in a city can have both positive and negative effects on child health and development. The built environment, including access to safe parks, playgrounds, recreational facilities, improved roads and footpaths, public lighting, family-friendly public spaces, and public transportation, in addition to access to quality medical and educational facilities, are crucial to the physical and mental health and well-being of children and adolescents. A lack of these structural opportunities can lead to many negative health consequences, including obesity, traffic injuries, higher crime rates, stress, and limited social networks and capital (Galea et al., 2019). In Banks’ study on urban youth in Arusha, young people and parents lamented the lack of physical space, such as a youth center, where adolescents could come together, be mentored, and develop skills, talents, and self-confidence. According to Banks, “(y)oung people’s space for socialization is limited to “the Street”, where they are often reluctant to socialize for fear of being stereotyped, accused of bad or criminal behaviours or dispersed by police” (Banks, 2016: 449). Through smart urban planning and investment in quality services, cities can create child and youth friendly urban environments which promote play, exploration, physical activity, and safe social interaction. Cities can make a range of social and structural changes to make their neighborhoods more child- and adolescent

friendly, as laid out by the UN's Child Friendly Cities Initiative (CFCI), which supports municipal governments in realizing the rights of children and youth at the local level (Galea et al., 2019).

To reach their full potential, though, improvements in urban environmental design need to be accompanied by strategies to improve neighborhood social conditions. Programs such as youth training and education programs, alternative livelihood training, micro-credit and savings programs, sports, recreation and cultural programs, and family support services are needed to improve safety, social trust, neighborhood cohesion, and youth participation. Coordinating, networking, and supporting local youth programs, religious groups, youth groups, and sports and cultural initiatives is an effective way to engage marginalized youth and build on their own efforts (Sommers, 2010; Refstie & Silva, 2012; Galea et al., 2019).

Examples of successful urban initiatives with and for youth range from community-based crime and violence prevention programs in Honduras, to participatory slum-upgrading initiatives with street children in Mumbai. The opportunities to engage youth in urban development are endless, once city leaders are committed to give youth issues full priority in their city development strategies and to make youth their strategic partners for sustainable development (Refstie & Silva, 2012; Siba, 2019).

## Aging

Whereas Africa, the Middle East, and parts of Asia are experiencing the unique challenges and opportunities of their growing youth populations, population aging is evident in cities around the globe, and rapid increases in the size of the elderly cohort age 60 and older require cities to consider age and aging as a key factor in urban planning and resource allocation (Cagney, 2019; Noordzij et al., 2019). In 2017, there were an estimated 962 million people aged 60 years and older globally, about 13% of the world's population, with Europe having the largest share of

people 60 years and older, at about 25% of the population. In contrast, Ghana's elderly population currently only constitutes about 8% of the population. However, due to falling fertility and rising life expectancy, by 2050 all regions of the world will experience a large increase in their over-60 cohort, nearing a quarter of their population (United Nations, 2018).

The World Health Organization (WHO) defines an age-friendly city as a place that "*encourages active ageing by optimizing opportunities for health, participation and security in order to enhance quality of life as people age*" (WHO, 2007: 1). Since the WHO launched its *Age-Friendly City Guide* in 2006, the development of more inclusive environments for older adults has gained traction, with currently over 600 cities participating in WHO's Global Network for Age-friendly Cities and Communities. To address rapid growth in its population of older residents, the New York City Age-friendly Cities (AFC NYC) project adapted WHO's *Age-Friendly City Guide* to the city's unique political and social environment. The initiative adopted a healthy aging perspective, viewing all of city life through the lens of aging, rather than designing aging-specific services. From the very outset, the inclusive assessment process included public officials (elected and appointed) as well as 1500 older New Yorkers, service providers, business, and community leaders, asking their opinions about what made New York City a good or a difficult place to age in. The project led to a government action plan and the creation of a public-private Age-friendly New York City Commission to oversee the implementation of city-wide activities. Through its inclusive process and its focus on healthy aging for all New Yorkers, the initiative gained wide support (Finkelstein & Netherland, 2010) and continues to influence intersectoral policies and programs.

The physical and social environment of cities are key determinants of whether people can live independently and stay physically and mentally healthy and socially active into their old age. WHO's age-friendly guidelines highlight eight areas that cities and communities can address to better serve the needs of older people, namely the

built environment, transport, housing, social participation, respect and social inclusion, civic participation and employment, communication, and community support and health services (WHO, 2007). Within each of these areas, cities should adapt their structures and services so that they are accessible to and inclusive of older people and their differing needs and capabilities. Local efforts of this nature enable healthy population aging by making cities that are socially engaging and physically accommodating, while allowing for intergenerational interaction (WHO, 2018).

Urban design and urban population health are intricately linked, and the urban physical environment can have positive and negative effects on people's physical, mental, and social well-being across the life-course. The availability of accessible parks, greenways, and river promenades, and other active, pro-social and safe spaces can very much determine whether older residents are able to maintain health and age independently in their homes and neighborhoods (Gruebner & McCay, 2019). Pro-social design can encourage spontaneous social interactions (e.g., greenways, parks, street furniture, public open spaces for farmers markets, community festivals, benches, sidewalks, sufficient street lighting, etc.), and should facilitate access for older persons or those with a disability (e.g., with ramps, audio signals at traffic lights, demarcations on the floor that guide visually impaired persons, and street signs suitable for people with dementia) (Gruebner & McCay, 2019). Through age-friendly urban design and service provision, cities can facilitate a feeling of community and belonging among their older residents, making it possible for them to remain integrated into the activities of daily life. According to Gruebner and McCay, "*older persons who are socially integrated and who have feelings of social connection are less likely to have cognitive decline*", contributing to their autonomy, self-esteem, and physical and mental well-being (Gruebner & McCay, 2019: 259).

Beyond infrastructure investments, providing accessible, affordable, and acceptable services for an aging population, including health and

eldercare services and facilities, will become more and more important for local governments, especially in cities of the Global South, which until very recently did not have large numbers of older residents.

### Box 18.3: Ghana's Aging Population

In Ghana, the proportion of people over 60 years is expected to grow from only 1.65 million in 2010 (6.1% of the population) to 6.5 million by 2050 (14.1% of the population). As Ghanaian scholar Michael Kpessa-Whyte points out, "*the growth in the elderly proportion of the population is occurring at the same time traditional systems of protection and care for the aged are breaking down on account of urbanization, socioeconomic development, and globalization*" (Kpessa-Whyte, 2018: 403). With 50% of the Ghanaian population currently already living in urban areas, these demographic changes will require the country's cities to rapidly adjust their public policy and planning to the needs of their aging population.

Currently, most elderly people in Ghana have no formal education, do no longer participate in the labor market (only 3% of the 60–64 age group), and live in the same household with their grown-up children or other family members. They are taking care of their grandchildren and help with household duties, freeing the economically active population in the family to pursue their work. In return, the working generation provides support for the elderly, in the absence of well-developed policies and programs that address the various vulnerabilities associated with aging (Kpessa-Whyte, 2018). However, with increasing modernization and urbanization, this traditional, inter-generational reciprocal system of providing care and support for the elderly has come under pressure. The number of unmarried adults in Ghanaian society is increasing, and although there have been reforms in recent years, currently

(continued)

**Box 18.3** (continued)

not even 1% of elderly Ghanaians are receiving statutory old age income support through a pension, and very few have benefitted from the government's LEAP social protection program, a cash transfer program for poor Ghanaian households (Kpessa-Whyte, 2018). According to Kpessa-Whyte, *“(w)ith this trend, a huge majority of over 99% of the Ghanaian elderly population would be without any form of retirement income security in the future, in a country where the family and community system of care and support of the elderly are fast disintegrating. The situation points to an imminent gerontological crisis if proactive policy interventions are not introduced to avert it”* (Kpessa-Whyte, 2018: 406).

Overall, the level of poverty and disability is high among Ghana's elderly population, particularly among divorcees and widows. Although Ghana's mandatory National Health Insurance scheme (NHIS) provides free care for the elderly, people must be 70 and older to qualify, and the insurance does not cover all illnesses, diseases, and health challenges the older population faces such as cancer, blindness, diabetes, stroke, hypertension, heart disease, and arthritis – all major conditions associated with aging (Kpessa-Whyte, 2018).

Private professionalized social care for the elderly is slowly emerging in Ghana's urban centers in response to time constraints due to work, formal education, and migration-related unavailability of working age family members. However, outsourcing services to non-family members is still the exception and only an option for wealthier Ghanaians (Kpessa-Whyte, 2018).

In 2011, Ghana adopted its first National Aging Policy and in 2016, a multi-disciplinary Center for Ageing Studies (CAS) was established at the University of Ghana to guide policy making through research and training. Clearly, these are

important first steps in a country just beginning to recognize and address aging-related issues and their importance for public policy and the country's social and economic development (Kpessa-Whyte, 2018). However, a lot more needs to be done to make Ghana, and particularly Ghana's cities, age-friendly.

As exemplified by Ghana (see Box 18.3), shifting age structure, an increasingly dual burden of communicable and non-communicable diseases, the gradual breakdown of traditional modes of care, rapid urbanization, and a lack of policy attention to social protection and the medical needs of the elderly are likely to lead to new public health challenges in the sub-Saharan region and other rapidly urbanizing low-income settings. WHO's Global Network for Age-friendly Cities and Communities, comprised of 600 member cities from across Europe, North America, Latin America, Asia, the Middle East, and Australia, provides a platform for information exchange and advice on how to foster inclusive urban environments for older adults. African cities have yet to join this initiative, which could help city leaders address the emerging needs of their (soon to be) aging urban populations.

## Migration

According to Ban Ki-moon, former Secretary General of the UN, *“(m)igration is an expression of the human aspiration for dignity, safety and a better future. It is part of the social fabric, part of our very make-up as a human family”* (United Nations, 2013). In 2020, an estimated 281 million people were living in a country other than their country of birth (3.6% of the world's population), continuing an upward trend in all regions of the world (IOM, 2022). In addition, over 760 million people had moved within their countries of birth, with over 260 million internal migrant workers having relocated within China alone (World Economic Forum, 2017).



Two-thirds of international migrants moved for employment reasons but in recent years, the number of forced migrants, including refugees and asylum seekers, has grown much faster than the number of voluntary migrants, reaching 25.9 million refugees and 41.3 million internally displaced persons in 2018 (IOM, 2021). The UN Refugee Agency (UNHCR) estimated that in 2016, 60% of refugees lived in urban areas, and that in some host countries, such as Jordan, this percentage is currently above 80%. At the same time, cities are increasingly becoming the sites of conflicts and natural disasters, posing a challenging environment for humanitarian aid delivery and civilian protection (CSIS, 2020).

In 2019, 52% of international migrants were male, 48% female (ranging from 43.4% in the less developed regions to 51.5% in the more developed regions), and 78% of international migrants were of working age (20–64 years) (United Nations, 2019). Economic, political, social, and environmental factors, including those triggered by climate change, all play a role in an individual's or a family's decision to move within their home country or across international borders. Often these push- and pull-factors overlap and most migrants cite several reasons that motivated them to migrate from their initial area of residence to their chosen destination. In addition, not all migration is permanent or direct and includes many patterns such as step-, circular- (e.g., seasonal), and chain-migration, as well as trans-nationalism, where migrants no longer consider their move as severing ties with their home country but lead multi-sited lives where *“exchanges and interactions across borders are a regular and sustained part of migrants' realities and activities”* (IOM, 2010: 1; World Economic Forum, 2017; Hermosilla & Rebello, 2019).

Overwhelmingly, migration is rural to urban or urban to urban in nature, causing the rapid expansion of cities. With more than three million people moving to cities every week, migration and urbanization are intricately linked and closely related to recent trends in globalization. As much as 92% of immigrants in the United States,

95% in the United Kingdom and Canada, and 99% of immigrants in Australia settle in cities, contributing significantly to population and economic growth in urban areas (Hermosilla & Rebello, 2019; World Economic Forum, 2017).

Migration occurs mainly between countries within the same world region and in 2019, most of the international migrants originating from sub-Saharan Africa (89%), and Eastern and South-Eastern Asia (83%), lived in a country located in their region of birth. Europe and Northern America continue to host the largest numbers of international migrants, but migrant populations have grown more rapidly in Northern Africa, Western Asia, and in sub-Saharan Africa (United Nations, 2019).

Since early 2020, the COVID-19 pandemic has brought global migration to an abrupt halt and could have long-term impacts on migration patterns, especially if developed countries keep travel restrictions in place and migrant flows low. Such a post-COVID-19 scenario could lead to even more people migrating within the developing world, increasing pressure on cities in the Global South (CSIS, 2020).

Although migration is a global phenomenon, the ten top countries of destination host about half of all international migrants, led by the United States (50.7 million), and Germany and Saudi Arabia (13.1 million each). Other prime destination countries include the Russian Federation (11.6 million), the United Kingdom (9.6 million), the United Arab Emirates (8.6 million), France (8.3 million), Canada (8.0 million), Australia (7.5 million), and Italy (6.3 million) (United Nations, 2019). The leading countries of origin in 2019 were India, with 17.5 million persons living abroad, Mexico with 11.8 million, and China with 10.7 million. Other countries with large numbers of emigrants are the Russian Federation with 10.5 million people living abroad, the Syrian Arab Republic with 8.2 million, Bangladesh with 7.8 million, Pakistan with 6.3 million, and the Philippines with 5.4 million people living abroad (United Nations, 2019).

In most global cities, the foreign-born population constitutes more than a third of the

population (e.g., 37% in New York and London, 38% in Singapore, 39% in Sydney, and 46% in Toronto) and in global economic, financial, and policy hubs such as Dubai and Brussels, more than half of the population is foreign born, due to these cities highly mobile workforces (83% in Dubai and 62% in Brussels) (World Economic Forum, 2017).

Metropolitan areas with more than 1.5 million residents attract a particularly large number of young migrants. Between 2010 and 2015 for instance, Beijing and Johannesburg recorded the highest growth in migration with fourteen migrants per 1000 inhabitants, and in 2015, Shanghai, China's largest city, recorded 9.96 million migrants, constituting 41% of the population. These figures stand in contrast to the average annual rate of migration at the country level: two migrants per 1000 people in South Africa and almost no migration growth in China (World Economic Forum, 2017).

According to the World Economic Forum, in 2015 migrants contributed USD 6.4–6.9 trillion (9.4%) of the world's gross domestic product (GDP), and while first generation immigrants can be more costly to governments than native-born populations, once adults, the second generation of immigrants are frequently among the greatest economic and fiscal contributors. Over time, therefore, immigrant populations have a positive effect on government and city budgets, enriching their destination cities with their ambition, enthusiasm, ideas, and skills (World Economic Forum, 2017).

The areas of urban life most affected by, and at the same time of greatest importance to migrants' well-being are housing, education, employment, urban transport, healthcare, utilities (e.g., water, energy, information, and communication technology), sanitation and waste management, and social cohesion and community integration. In fact, migration can be considered as one of the social determinants of health and addressing the physical and mental health impact of the migration process is an important component of urban health. However, a 2017 survey of 22 cities around the world showed that many cities face challenges in affording basic necessities: 20 out

of the 22 cities studied struggled to provide affordable and social housing for their populations. This was particularly the case in LMICs, where many migrants end up in urban slums and informal settlements (World Economic Forum, 2017). While there are positive examples of cities creating new, affordable housing through slum rehabilitation programs (e.g., in Surat, India, where between 2007 and 2017, 46,856 new housing units were created, reducing the proportion of slum dwellers from 17% to 4.3%), many African cities suffer from severe housing shortages, very high housing prices, and consequently growing slums and informal settlements. Currently, more than half of urban residents in sub-Saharan Africa, many of them newly arrived migrants, live in informal settlements and slums without access to basic services, and struggling to meet their basic needs. In Cape Town, for instance, prices in the metropolitan area have increased by 60% since 2012, leading to increased demand for housing in former black townships, often in the form of backyard dwellings, and informal settlements. The city has tried to improve basic service delivery to low-income areas and has begun re-blocking informal settlements to improve emergency service and delivery access. Dakar suffers from similar problems, including a steep rise in real estate prices, land speculation, spatial-spread (peri-urbanization), settlements in ecologically fragile areas, and the growth of a shadow housing market with many urban residents squatting, co-locating, or subletting in crowded suburban areas. In 2014, Senegal passed a law to reduce rents in Dakar by 29% for rents under CFA 150,000 (equivalent to USD 250), to make housing more affordable for its less affluent population and to counter ever increasing residential segregation (World Economic Forum, 2017; UN-Habitat, 2016a).

In the same World Economic Forum survey of 22 cities, 15 identified providing primary and secondary education for migrants as a challenge, citing language barriers and increasing class and school size as particularly difficult to manage. In Cape Town, for instance, migration has put strain on primary and secondary schools in certain hot spot areas. The city has responded by

building 17 new schools in these areas between 2010 and 2013, with plans to add 15 more schools to accommodate migrant children from the Western and Eastern Cape Regions. Due to high influx of migrants from the Eastern Cape Region, Cape Town has also added isiXhosa as its third official language (World Economic Forum, 2017).

Employment and access to the labor market was a concern in all cities surveyed, with eleven of the 22 considering growing unemployment rates a challenge, including Cape Town, Dakar, and Amman, where the unemployment rates were 23, 16.9, and 15%, respectively (World Economic Forum, 2017). Like in most African cities, much of Dakar's economic growth is taking place in the informal trade sector, with young street vendors dominating the city scape. To address this growing informal economy in public spaces and alleyways, the city of Dakar opened the Felix Eboué Shopping Center in 2016, to enable young people to sell their goods in areas designated for this purpose. In Cape Town, informal trading also creates jobs and contributes to the city's economic and social life. The city's job creation and skills development initiative, the Expanded Public Works Programme (EPWP) helps the urban unemployed to find formal sector jobs, while at the same time improving the city's stressed transport and road infrastructure (World Economic Forum, 2017).

Providing universal access to healthcare for migrants was another issue of concern in 16 out of the 22 surveyed cities, including enhanced infrastructure, and provision of medication and healthcare workers. Living in new physical, social, cultural, and political environments, often without the necessary language skills or legal status, places great demands on the health and coping skills of migrants. Especially in cities with large slums and informal settlements, migrants' living conditions worsen their physical, mental, and social health risks. Migrants often lack awareness about local health services in the host city or face poor quality or denial of services, and very few developing countries have developed good practices to address the health issues of

migrants within their borders (World Economic Forum, 2017; Vearey et al., 2017).

To address the health needs of urban migrants, cities need to provide services that are culturally, linguistically, and logistically sensitive. This requires training and support for healthcare workers, the availability of translators and culture brokers, and ideally, the inclusion of migrants in the design of the urban health system. While urban migrants present unique challenges to existing health services and systems, effectively addressing the barriers they face can lead to great overall improvements in health services, structures, and policies that can accommodate the needs of a more pluralistic population – native born and migrant alike (Hermosilla & Rebello, 2019). For example, language and cultural barriers may give rise to misunderstandings, discrimination, and xenophobia, and result in migrants being excluded from basic urban services. Ten out of the 22 surveyed cities acknowledged that they struggled to achieve integration and social cohesion, but most cities had also already planned and implemented programs to better integrate migrants and refugees, including Cape Town, Medellín, São Paulo, Montreal, and Berlin. Cape Town, for example, has developed a Disaster Risk Management Plan to deal with any xenophobic attacks in consultation with migrants, and the city has been proactive to include migrants in dialogues concerning their social integration (World Economic Forum, 2017).

In Johannesburg, which is home to a large and diverse migrant population, the Johannesburg Migrant Health Forum (MHF) constitutes a successful local, multi-sectoral response to urban migration. Since 2008, this informal working group of civil society actors, which also includes the University of Witwatersrand and the IOM South Africa, has positively contributed to the development of local responses to migration and health in Johannesburg's inner-city Hillbrow neighborhood. The MHF monitors discrimination against migrants in public services, links community members with policymakers, and facilitates cooperation between diverse service providers to

improve service delivery to migrant clients (Vearey et al., 2017).

Although cities host most of the world's internal as well as international migrant populations, the current global discussion on migration and its economic, social, and political effects mainly takes place at the national level without adequate involvement of city leaders, leaving it up to local governments to develop their own strategies and policies to integrate migrants into the community (World Economic Forum, 2017). As a result, city leaders must deal with the consequences of national immigration policies, which can either promote or restrict migrant flows to a country's metropolitan areas, which are sometimes at odds with local needs or constraints. Many cities are grappling with additional pressures on already stressed infrastructure while others are welcoming the migrants' skills and productive workforce. Differences between the interests of migrants, city governments, and national governments have led to contrary views and tensions in some countries (World Economic Forum, 2017).

One example of the conflict between the views of urban leaders and national government occurred around the declaration of sanctuary cities in the United States during the Trump Administration. Chicago, Los Angeles, Washington, DC, and New York passed measures for non-cooperation with certain federal immigration controls that city governments regarded as prejudicial to their immigrant communities, such as preventing local police from asking about people's immigration status. Sanctuary cities have also provided immigrants assistance and support, helping them to settle and integrate into their host communities (World Economic Forum, 2017). Washington DC, for instance, provides equal access to all programs and services, including free access to health insurance, education services, limited purpose driver's licenses (as ID cards), and mental health counseling to all families without regard to immigration status or English language ability (Office of the Mayor, 2019).

In response to the Trump administration's hard line on immigration, U.S. cities further strengthened their role as safe havens for migrants and

refugees. In June of 2019, Washington, DC Major Muriel Bowser declared: "*Regardless of immigration status, immigrants in DC are our neighbors, coworkers, family members, and valued members of our community. The President should understand that not only are these threats cruel and antithetical to our American values, they are actually making our communities less safe by sending more residents into hiding, cut off from resources, support, and opportunity. Washington, DC remains a proud sanctuary city, and we are committed to protecting the rights of all our immigrant families in the face of these disturbing threats. We will continue to stand shoulder to shoulder with our immigrant neighbors this week and every week. . .*" (Office of the Mayor, 2019). In October 2019, the Council of the District of Columbia unanimously passed emergency legislation to further limit the city's cooperation with federal immigration authorities, particularly with Immigration and Customs Enforcement (ICE), protecting undocumented immigrants from being detained and deported (Council of the District of Columbia, 2019).

As the prior discussion has shown, addressing the multiple determinants of health affecting urban migrants, including housing, health services, education, employment, basic utilities, and social integration, requires cities to create multicultural urban plans that are inclusive and sustainable (Hermosilla & Rebello, 2019). The more cities succeed in mainstreaming migration into urban planning, the greater the benefits for the entire urban population, including the most underserved and vulnerable in the community. According to the World Economic Forum's Future of Urban Development and Services Initiative, cities should strive to become integrated and inclusive. This includes evidence-based coverage of migrant affairs to counter biased perceptions about migrants, active participation of migrants and their communities in integrated urban planning and governance, and clearly defined policies for migrant rights and integration. It also requires a coherent and collaborative approach between federal, state, and city governments, cross-sector collaboration within the country and internationally (including with the private sector and non-governmental

organizations), and responsive, outward-looking, and action-oriented city leadership, which sets a positive tone for welcoming and integrating migrants into their communities (World Economic Forum, 2017).

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## Health and Socioeconomic Inequities in Urban Areas

### Rising Inequities and Issues of Measurement

Globally, cities are the engines of economic growth, but also of social and economic inequalities that threaten to undermine the so-called “urban advantage” (United Nations, 2020). In LMICs, the concomitant processes of industrialization, globalization, and rapid urbanization have further sharpened these divides, witnessed in stark socioeconomic differentials in housing and job security and growing evidence of health disparities.

Until recently, the lack of urban disaggregated data has fueled misperceptions that city dwellers enjoy better health than their rural counterparts when in fact, health indicators among the urban poor are often worse than in rural areas. The challenge of keeping track of large and fast-growing urban populations has further flummoxed the collection of basic information on urban residents.

### Visible Inequities and Invisible Populations

Where urban-disaggregated data do exist, a number of global trends are clear. Among the most notable is the ubiquity of urban health inequities, defined here as health inequalities that are systematic, socially produced (and therefore modifiable), and unfair. Health inequities are the result of the circumstances in which people grow, live, work, and age, and the health systems they can access, which in turn are shaped by broader political, social, and economic forces (WHO, 2008). These inequities are not distributed randomly, but rather show a consistent pattern across the population.

For example, some city dwellers have poor health outcomes because of the way societies marginalize and discriminate against them for aspects of their identity they cannot change, such as age, sex, ethnicity, race, or disability. However, the so-called “neighborhood effect” is perhaps the greatest urban stratifier of them all, whereby the odds of being healthy depend very much on one’s “place” and “space” within the city.

Across almost every urban setting globally, we see a geographic clustering of disease and disadvantage. In New York City, a gap of almost 11 years of life expectancy at birth exists between the city’s most affluent and poorest neighborhoods (Li et al., 2017). Similar differentials are seen in Nairobi, where in 2013, the under-five mortality rate was approximately 3.6 times greater in slums compared to Nairobi as a whole (Mberu et al., 2016).

Slums or informal settlements are typically the areas where inequities in health are the most visible. At the same time, due to their illegal status, they are areas that remain largely invisible in terms of municipal priorities. Often located on illegal and/or uninhabitable geographic areas where adverse exposure to flooding or poor environmental quality pose dangers to health, slum settlements are typically overlooked in terms of infrastructural investment. A lack of tenure security is a hallmark characteristic of informal settlements, and is one of the greatest vulnerabilities facing residents, with the risk of eviction presenting a constant threat to individuals and households already living at the margins.

The urban poor suffer disproportionately from a wide range of health problems and are most at risk for adverse health outcomes such as early childhood death, stunting, inadequate access to formal health services such as skilled birth attendants, and to basic services essential to health such as piped water and municipal sewerage (Hurt, 2019; Kumar et al., 2018; Satterthwaite, 2017). The absence of these services, as well as poverty, crowding, and inadequate housing, create conditions in which vector and water-borne diseases and other communicable diseases thrive (Kumar et al., 2018).

Accidents, injuries, and chronic diseases resulting from weak regulation around occupational and road safety, insufficient green space, as well as indoor and outdoor air and noise pollution, can be added to the list of health threats that LMIC cities are currently confronting (Kumar et al., 2018; Nambiar et al., 2017). Again, the urban poor are especially vulnerable. Stressful and insecure livelihoods often involving poor working conditions and exposure to physical hazards and chemical pollutants, exacerbate their risks of injury and NCDs such as diabetes, hypertension, cancers, and mental disorders (Kumar et al., 2018).

The economic costs of health seeking in the context of poorly organized public urban health systems are a further stressor (Satterthwaite, 2017). Both chronic healthcare seeking and acute care crises can push poor urban households into medical impoverishment, given reliance on private sector providers and the absence of robust social safety nets (Adams et al., 2020).

However, the adverse consequences of urban inequities are not confined to vulnerable populations. Tensions arising from massive gaps in living standards, economic and social opportunity, and civic protections are often manifested in crime, violence, intolerance, and social unrest, and affect all urban dwellers (Hurt, 2019). Similarly, infectious disease outbreaks, sometimes arising in deprived areas of a city, rarely respect socioeconomic boundaries. In the context of high population density and mobile urban populations, the risks of dengue, cholera, or even coronavirus, can spread easily beyond a single neighborhood and endanger all urban residents.

The COVID-19 pandemic further emphasizes how living conditions and access to healthcare are important determinants of vulnerability, with those living in poverty at highest risk of mortality (Corburn et al., 2020). At the same time, the economic and social costs of the disease are disproportionately born by the poorest whose livelihoods are largely dependent on informal sources of income, which are among the first to suffer in lockdown conditions.

Hunger in urban areas is rising due to the COVID-19 pandemic, and according to the

World Food Program USA, food insecurity is hitting cities hardest, affecting the urban poor in great numbers. The International Food Policy Research Institute (IFPRI) estimates that due to the pandemic, the number of poor people will grow by 44% in urban areas as opposed to 15% in rural areas, leading to a dramatic rise in immediate and potentially long-term food insecurity among the urban poor (CSIS, 2020).

## Reducing Urban Health Inequities

### A Social Justice Issue

Urban health inequities in LMIC settings emerge from a complex interaction of social, demographic, economic, and geographic factors, which together affect health risk exposure, health behaviors, access to healthcare, and health outcomes. Reducing such inequities in health is a matter of social justice and essential to ensuring the future sustainability of cities in LMICs. These actions must fundamentally address the structural causes of poverty and the broader social and environmental determinants of health found in the daily conditions in which people live, work, learn, and play. They must also be multi-sectoral and multi-scalar in scope, whereby different sectors and levels of government, the private sector, and civil society, including the most affected communities, act in unison to tackle health inequity. Areas of focus are necessarily specific to context, and can span investments in sustainable urban transport, improving water and sanitation infrastructure, developing health emergency capacity, or ensuring universal access to quality healthcare. Bogota, the capital of Colombia, is a widely cited example of enlightened investment in infrastructure with documented positive impacts on health equity including a decrease in crime and violence (Nieuwenhuijsen & Khreis, 2019). Among these investments was the TransMilenio urban bus rapid transit (BRT) system, built in the early 2000s under the city's two-times mayor Enrique Peñalosa (1998–2001 and 2015–2019), providing residents living in poorer neighborhoods, timely and affordable access to work and other opportunities within

the city. According to Peñalosa's pro-poor vision, "*an advanced city is not one where even the poor use cars, but rather one where even the rich use public transport*". To him, "buses represent democracy in action" (Peñalosa, 2013). The TransMilenio remains the fastest BRT system in the world, transporting up to 2.47 million riders per day on its twelve lines, which can be accessed via 148 stations (see [www.transmilenio.gov.co](http://www.transmilenio.gov.co), accessed on March 8, 2021).

By limiting transport costs, reducing travel time, and improving accessibility, BRT systems have facilitated access to markets and services. These investments are particularly impactful for women in developing countries whose labor force participation is challenged by lack of access to safe transportation. Recent studies in Lima, Peru, have shown that women who live closer to the city's BRT system are more likely to be employed than those with less access to safe public transport (Yañez-Pagans et al., 2019). Just as urban transport systems have important implications for people's mobility, economic opportunities, access to services, social integration, and civic participation, different modes of transport can have various positive and negative health impacts on urban populations. The high reliance on motor vehicles as the primary mode of transport in many of today's cities has led to multiple adverse health effects, including traffic-related deaths and injuries, air pollution, noise, increased local heat exposures, reduced green space exposures and biodiversity loss, lack of physical activity, climate change, and social exclusion and community division (Nieuwenhuijsen & Khreis, 2019).

In many large cities, unplanned urban growth and income inequality have pushed the poor to the outskirts, where they often live in informal settlements scarcely serviced by effective public transport. Consequently, the urban poor either spend long and expensive transit times to get to work or access services, or they skip trips to the city center altogether – both realities exacerbating social inequalities (Nieuwenhuijsen & Khreis, 2019).

During his time as Bogota's mayor, Enrique Peñalosa also created a 350-km-wide network of bicycle paths, upgraded slums, created parks and

pedestrian areas in the poorest parts of the city, established a land bank to provide quality housing in low-income neighborhoods, introduced daily restriction on car use during peak hours, built public parks and libraries, and commissioned public schools of high architectural quality (World Bank, 2018b). The creation of bicycle paths throughout Bogota, and the Ciclovía Recreativa program, where almost 100 km of city streets are closed to traffic on Sundays, were effective innovations to promote physical activity and civic participation. In both cases, studies have revealed measurable reductions in traffic-related air pollution (WHO & UN-Habitat, 2016; see Box 18.4).

**Box 18.4: Reducing Urban Inequities in Latin America Through Innovative Transport Solutions**

Over the past two decades, many Latin American cities have tried to counter the detrimental impact of mass motorization and to reduce social inequalities by introducing innovative transportation solutions, such as bus rapid transit (BRT), metro and light rail systems, and urban cable cars. Curitiba in Brazil was the first city to successfully introduce a BRT system in 1977, featuring express bus lanes and triple-length buses that can carry up to 270 people, and many more cities, including Mexico City, Lima, Peru and Bogota, Colombia have followed (Yañez-Pagans et al., 2019). Other cities, such as Medellín, Colombia, and La Paz, Bolivia, have chosen to improve transportation and address social inequity through innovative aerial cable car systems, which are well suited for the cities' geographic characteristics, have lower construction costs, and are environmentally friendly.

Medellín's Metrocable system was specifically designed to connect Santo Domingo Savio, a densely populated poor neighborhood on a mountainside, with the main metro line and consequently the city's

(continued)

**Box 18.4** (continued)

economic and cultural center. Construction of the cable car line was as much a transport policy as a social policy aimed at social integration of the poorest and more inaccessible parts of the city. Studies have shown a reduction in violence in neighborhoods served by the Metrocable and increased employment opportunities for the poor. In addition, Santo Domingo Savio and subsequently served areas have seen greater economic development, modernization of neighborhoods, improved quality of life, and an increase in tourism (Yañez-Pagans et al., 2019).

The system in La Paz, Mi Teleférico, went into operation in 2014, and is by now the longest system in the world, connecting the twin cities of El Alto and La Paz with a network of currently eleven lines, 39 stations, 32.7 km of cables, and 1506 cabins (see [www.miteleferico.bo](http://www.miteleferico.bo), accessed on March 8, 2021). The neighboring cities of El Alto and La Paz with a combined population of two million, are separated by a 400 m (1300 ft) difference in elevation, which has made travel between the two cities challenging. La Paz, the national capital of Bolivia, was built in a canyon, while El Alto, a rapidly growing but poorer city with a majority indigenous population, is located above it on the Altiplano plateau. Before the construction of the cable car system, public transit between La Paz and El Alto was limited to buses and minibuses on crowded, winding streets.

A recent quantitative study on travel time savings has shown that on average, Mi Teleférico reduced travel times by 22%, which translates into a net benefit of USD 0.58 per commute (Garsous et al., 2019). Another study found an increase in expenditures on public vs. private transport, a significant reduction in transport time,

and an increase in time spent on educational and recreational activities, as well as an increase in self-employment and associated income among households who live closer to a Mi Teleférico station (Yañez-Pagans et al., 2019).

These examples show the great potential of innovative urban transport investments to promote sustainability, poverty reduction, and social inclusion – especially if they are combined with other social policies aimed at reducing urban inequities.

**Data**

Clearly, feasible, effective, and sustainable investments to reduce urban inequities must be informed by reliable evidence. A first area requiring urgent attention is the need for urban disaggregated data to identify who is at greatest risk, the determinants of these risks, and what actions need to be taken (WHO & UN-Habitat, 2010). Efforts to assess and monitor urban health equity over time are especially critical, as are mechanisms that bring actors together to plan action for reducing health inequities.

WHO's Urban HEART is a Health Equity Assessment and Response Tool that enables collaborative planning and response. By disaggregating data on health determinants and their interactions, Urban HEART helps identify high risk populations, which sectors need to be involved to address these risks, and the organizational level at which action should occur (WHO & UN-Habitat, 2010). Urban HEART has been successfully implemented in more than 100 cities in almost 60 countries around the world as a means of planning sustainable actions for reducing health inequities (WHO & UN-Habitat, 2016). Harnessing urban big data using technologies and methods such as Artificial Intelligence and predictive modeling are also showing promise. Simulations, for example, can help identify the best investments for health equity and sustainable development by testing the co-benefits of coordinated action across different sectors (WHO & UN-Habitat, 2016).



Whatever the approach to measurement, basic data should include a range of health determinants and outcomes, and facilitate disaggregated analysis by sex, age, socioeconomic status, or geographic location sourced at local or national levels and meeting high standards of reliability and completeness.

### Urban Governance

While ongoing measurement of the nature and scope of urban health inequities may be helpful in determining priority interventions and monitoring their impacts over time, effective governance is essential. In many LMICs, investments in urban health governance at both local and national levels are urgently needed. Among these is capacity development for evidence-informed decision-making and implementation, and for effective community-engaged, cross-sectoral, and multi-scalar collaboration.

While close-to-community, municipal governments are perhaps the best positioned to address the main determinants of health inequities, they must do so in a manner that includes community and coordinates with other levels of government (WHO & UN-Habitat, 2010). Some actions may require the horizontal involvement of stakeholders such as municipal government departments, civil society, and the private sector, while for others vertical partnerships among national, regional, and local governments may also be needed, especially as regards large investments in social protection or infrastructural projects. Effective multi-stakeholder collaboration will also require shared vision, political commitment, and robust institutional arrangements that will support collaboration processes, all of which cannot be assumed.

In any effort to address inequities, clarity in approach is important. Will the emphasis be on: (a) targeting disadvantaged population groups; (b) narrowing the health gap, between the extremes of the socioeconomic spectrum; or (c) reducing health inequities across the entire urban population? (WHO & UN-Habitat, 2016). While it is generally agreed that the third approach is the most effective, there is a risk that interventions intended to improve population

health may not reach vulnerable groups, thereby potentially increasing health inequities (WHO & UN-Habitat, 2016). Keeping the goal of reducing health inequities in mind, careful analysis is needed to determine whether priority interventions should be designed to reach only disadvantaged population groups or all urban residents. Finally, although selected interventions should be feasible, sustainable, and evidence-based, intervention choice should also consider local capacity for implementation, the impact of the intervention and its acceptability, and likely political support.

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### Moving Forward

The SDGs and the New Urban Agenda offer new platforms for cities to connect globally and cooperate on a wide range of development issues, including health, environment, and the economy. The growing ecosystem of city networks and their influence in multilateral forums and global agendas present further opportunities to realize equitable and healthy cities globally, particularly if synergies and energies are strategically harnessed. The COVID-19 pandemic has highlighted how a coherent and collaborative approach between private and public sectors, and local and national governments, are fundamental to the health of cities. It has also shown how investments in coordination and disaster and pandemic preparedness are essential to the health of urban dwellers and the economy more generally (CSIS, 2020).

In rapidly urbanizing LMICs, the need for concerted action on issues of governance as well as urban planning is particularly urgent given the tendency of unplanned growth to produce health inequities. With action, much avoidable suffering can be prevented, and progress made in realizing the economic and human potential of all urban residents. This promise can be accelerated by reconnecting the fields of demography, health, and urban planning within a framework of strong and inclusive urban governance, and taking full advantage of digital innovations, simulations, and modeling in service of greater efficiency and

equity in urban services and infrastructure. All of this must be accomplished in a dynamic context of globalization, climate change, and shifting political, demographic, and epidemiological realities. Here the development of sustainable, equitable, inclusive urban plans must be prioritized, which project forward, and are welcoming and responsive towards the needs of migrants, youth, and an aging population.

## References

- Achyut, P., Benson, A., Calhoun, L. M., Corroon, M., Guilkey, D. K., Kebede, E., Lance, P. M., Mishra, A., Nanda, P., O'Hara, R., Sengupta, R., Speizer, I. S., Stewart, J. F., & Winston, J. (2016). Impact evaluation of the Urban Health Initiative in urban Uttar Pradesh, India. *Contraception*, 93(6), 519–525. <https://doi.org/10.1016/j.contraception.2016.02.031>
- Adams, A. M., Islam, R., Panasci, A., & Crowell, N. (2020). Healthcare seeking for chronic illness among adult slum dwellers in Bangladesh: A descriptive cross-sectional study in two urban settings. *PLOS One*. <https://doi.org/10.1371/journal.pone.0233635>
- Africanews. (2019). *Magufuli moves to Tanzania's new capital Dodoma*; see <https://www.africanews.com/2019/10/15/magufuli-moves-to-tanzania-s-new-capital-dodoma>
- African Union. (2017). *Roadmap on harnessing the demographic dividend through investments in youth*. African Union.
- Allen, R. H. (2007). The role of family planning in poverty reduction. *Obstetrics & Gynecology*, 110(5), 999–1002.
- Alwehab, A. A., & Juvara, M. (2018). Planning and design attributes of preplanned postmodern capital cities: A comparative study. *KnE Engineering*, 3(4), 208–224. <https://doi.org/10.18502/keg.v3i4.2170>
- Banks, N. (2016). Youth poverty, employment and livelihoods: Social and economic implications of living with insecurity in Arusha, Tanzania. *Environment and Urbanization*, 28(2), 437–454. <https://doi.org/10.1177/0956247816651201>
- BDHS. (2016). *Bangladesh demographic and health survey 2014*. National Institute of Population Research and Training (NIPORT), Mitra and Associates, & ICF International.
- Beekmans, L. (2018). The architecture of nation-building in Africa as a development aid project: Designing the capital cities of Kinshasa (Congo) and Dodoma (Tanzania) in the post-independence years. *Progress in Planning*, 122, 1–28. <https://doi.org/10.1016/j.progress.2017.02.001>
- Benson, A., Calhoun, L., Corroon, M., Gueye, A., Guilkey, D., Kebede, E., Lance, P., O'Hara, R., Speizer, I. S., Stewart, J., & Winston, J. (2018). The Senegal urban reproductive health initiative: A longitudinal program impact evaluation. *Contraception*, 97(5), 439–444. [10.1016/j.contraception.2018.01.003](https://doi.org/10.1016/j.contraception.2018.01.003)
- Bongaarts, J., & Guilamoto, C. Z. (2015). How many more missing women? Excess female mortality and prenatal sex selection, 1970–2050. *Population and Development Review*, 41(2), 241–269.
- BUHS. (2015). *Bangladesh urban health survey 2013 final report*. National Institute of Population Research and Training (NIPORT), International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B), & MEASURE Evaluation.
- Cagney, K., (2019). Aging populations. In S. Galea, C. K. Ettman, & D. Vlahov (Eds.), *Urban health* (Reprint Edition, pp. 59–69). Oxford University Press,
- Cartwright, A., Palmer, I., Taylor, A., Pieterse, E., Parnell, S., & Colenbrander, S. (2018). *Developing prosperous and inclusive cities in Africa – National urban policies to the rescue?* Coalition for Urban Transitions; see [https://newclimateconomy.report/workingpapers/wp-content/uploads/sites/5/2018/09/CUT18\\_Africa\\_NatUrbanPolicies\\_final.pdf](https://newclimateconomy.report/workingpapers/wp-content/uploads/sites/5/2018/09/CUT18_Africa_NatUrbanPolicies_final.pdf)
- Cates, W., Jr. (2010). Family planning: The essential link to achieving all eight millennium development goals. *Contraception*, 81(6), 460–461.
- CIA. (2017). *The world factbook*. Central Intelligence Agency; see <https://www.cia.gov/library/publications/the-world-factbook/fields/349.html>
- City Mayors Foundation. (2020). *Largest cities in the world*. The City Mayors Foundation; see <http://www.citymayors.com/statistics/largest-cities-research.html>. Accessed 11 Apr 2020.
- Corburn, J., Vlahov, D., Mberu, B., Riley, L., Caiaffa, W. T., Rashid, S. F., Ko, A., Patel, S., Jukur, S., Martínez-Herrera, E., Jayasinghe, S., Agarwal, S., Nguendo-Yongsi, B., Weru, J., Ouma, S., Edmundo, K., Oni, T., & Ayad, H. (2020). Slum health: Arresting COVID-19 and improving well-being in urban informal settlements. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 97(3), 348–357. <https://doi.org/10.1007/s11524-020-00438-6>
- Council of the District of Columbia. (2019). *D.C. Law 23-56. Sanctuary Values Temporary Amendment Act of 2019*. Council of the District of Columbia; see <https://code.dccouncil.us/dc/council/laws/23-56.html>
- CSIS. (2020). *Experts react: Urban legends*. Center for Strategic and International Studies; see <https://www.csis.org/analysis/experts-react-urban-legends>
- da Cruz, N., Rode, P., & McQuarrie, M. (2019). New urban governance: A review of current themes and future priorities. *Journal of Urban Affairs*, 41(1), 1–19. <https://doi.org/10.1080/07352166.2018.1499416>
- Finkelstein, R., & Netherland, J. (2010). Age-friendly New York City. In D. Vlahov, J. Boufford, C. Pearson, & L. Norris (Eds.), *Urban health: Global perspectives* (pp. 91–103). Jossey-Bass.
- Galea, S., Ettman, C. K., & Vlahov, D. (Eds.). (2019). *Urban health* (Reprint Edition). Oxford University Press.
- Garsous, G., Suárez-Alemán, A., & Serebrisky, T. (2019). Cable cars in urban transport: Travel time savings from La Paz-El Alto (Bolivia). *Transport Policy*, 75, 171–182.

- Government of India. (2014). *India's 'Vision FP 2020'*. Ministry of Health and Family Welfare, Family Planning Division; see <http://advancefamilyplanning.org/sites/default/files/resources/FP2020-Vision-Documents%20India.pdf>
- Gruebner, O., & McCay, L. (2019). Urban design. In S. Galea, C. K. Ettman, & D. Vlahov (Eds.), *Urban health* (Reprint Edition, pp. 256–261). Oxford University Press.
- Guin, D. (2018). From large villages to small towns: A study of rural transformation in new census towns, India. *International Journal of Rural Management*, 14(2), 87–109. <https://doi.org/10.1177/0973005218793248>
- Hashmi, A. R., & Mok, W. J. (2013). The determinants of low fertility in Singapore: Evidence from a household survey. *Singapore Economic Review*, 58(4), 1–26. <https://doi.org/10.2139/ssrn.1855576>
- Hermosilla, S., & Rebello, T. (2019). Migration. In S. Galea, C. K. Ettman, & D. Vlahov (Eds.), *Urban health* (Reprint Edition, pp. 85–93). Oxford University Press.
- Hurt, S. (2019). Urbanization and mental health: A look at the developing world. *Harvard International Review*, 40(1), 24–29.
- Ikoku, G. (2004). The city as public space: Abuja-The capital city of Nigeria. *Forum*, 6(1), 34–45.
- ILO. (2010). *Global employment trends for youth*. International Labour Organization.
- ILO. (2020). *ILOSTAT data catalogue*. International Labour Organization; see <https://ilostat.ilo.org/data/>. Accessed 5 June 2020.
- IOM. (2010). *Intersessional workshop on migration and transnationalism: Opportunities and challenges* (Working paper). International Organization for Migration; see [https://www.iom.int/jahia/webdav/shared/shared/mainsite/microsites/IDM/workshops/migration\\_and\\_transnationalism\\_030910/background\\_paper\\_en.pdf](https://www.iom.int/jahia/webdav/shared/shared/mainsite/microsites/IDM/workshops/migration_and_transnationalism_030910/background_paper_en.pdf)
- IOM. (2021). *Global migration trends*. International Organization for Migration; see <https://www.iom.int/global-migration-trends>. Accessed 9 Feb 2021.
- IOM. (2022). *World Migration Report 2022*. International Organization for Migration; see <https://publications.iom.int/books/world-migration-report-2022>. Accessed 24 April 2022.
- Jayachandran, S. (2014). *Fertility decline and missing women* (Working Paper 20272). National Bureau of Economic Research.
- Keyonzo, N., Nyachae, P., Kagwe, P., Kilonzo, M., Mumba, F., Owino, K., Kichamu, G., Kigen, B., Fajans, P., Ghiron, L., & Simmons, R. (2015). From project to program: Tupange's experience with scaling up family planning interventions in urban Kenya. *Reproductive health matters*, 23(45), 103–113. <https://doi.org/10.1016/j.rhm.2015.06.010>
- Kpessa-Whyte, M. (2018). Aging and Demographic transition in Ghana: State of the elderly and emerging issues. *The Gerontologist*, 58(3), 403–408. <https://doi.org/10.1093/geront/gnx205>
- Krenn, S., Cobb, L., Babalola, S., Odeku, M., & Kusemiju, B. (2014). Using behavior change communication to lead a comprehensive family planning program: The Nigerian Urban Reproductive Health Initiative. *Global Health, Science and Practice*, 2(4), 427–443. <https://doi.org/10.9745/GHSP-D-14-00009>
- Kumar, S., Kumar, S., & Gupta, B. (2018). Urban health: Needs urgent attention. *Indian Journal of Public Health*, 62(3), 214–217. [https://doi.org/10.4103/ijph.IJPH\\_90\\_18](https://doi.org/10.4103/ijph.IJPH_90_18)
- Kyaw Soe Htet. (2019). *More time needed before expatriates consider relocating to Nay Pti Daw*. *Myanmar Times*, October 8.
- Lazaro, E., Agergaard, J., Larsen, M. N., Makindara, J., & Birch-Thomsen, T. (2019). Urbanisation in rural regions: The emergence of urban centres in Tanzania. *The European Journal of Development Research*, 31(1), 72–94. <https://doi.org/10.1057/s41287-018-0185-9>
- Li, W., Sebek, K., Huynh, M., Castro, A., Gurr, D., Kelley, D., Kennedy, J., Maduro, G., Lee, E., Sun, Y., Zheng, P., & Van Wye, G. (2017). *Summary of vital statistics, 2015*. New York City Department of Health and Mental Hygiene, Bureau of Vital Statistics.
- Marais, L., & Cloete, J. (2017). The role of secondary cities in managing urbanisation in South Africa. *Development Southern Africa*, 34(2), 182–195. <https://doi.org/10.1080/0376835X.2016.1259993>
- Marchettini, N., et al. (Eds.). (2004). *The sustainable city III: Urban regeneration and sustainability* (Advances in Architecture Ser. No 18). WIT Press.
- Mberu, B. U., Haregu, T. N., Kyobutungi, C., & Ezeh, A. C. (2016). Health and health-related indicators in slum, rural, and urban communities: A comparative analysis. *Glob Health Action*, 9(9), 33163. <https://doi.org/10.3402/gha.v9.33163>
- MISTRA 2nd Annual Lecture. (2017). With Maruxa Cardama, Special Advisor within the Secretariat of Cities Alliance; see <https://www.youtube.com/watch?v=Vb1ZY>
- Nambiar, D., Razzak, J., Afsana, K., Adams, A. M., Hasan, A., Mohan, D., & Patel, V. (2017). Mental illness and injuries: Emerging health challenges of urbanisation in South Asia. *BMJ (Clinical Research edit.)*, 357(j1126), 1–3. <https://doi.org/10.1136/bmj.j1126>
- Nanda, P., Achyut, P., Mishra, A., & Calhoun, L. (2011). *Measurement, learning & evaluation of the urban health initiative: Uttar Pradesh, India, baseline survey 2010* (TWP-3-2011). Measurement, Learning & Evaluation Project.
- National Geographic Magazine. (2019). *Environment: The cities issue*. The National Geographic Society; see <https://www.nationalgeographic.com/environment/2019/04/tanzanian-city-may-soon-be-one-of-the-worlds-most-populous/>

- Nieuwenhuijsen, M., & Khreis, H. (2019). Transport and health. In S. Galea, C. K. Ettman, & D. Vlahov (Eds.), *Urban health* (Reprint Edition, pp. 52–58). Oxford University Press.
- Noordzij, J. M., Beenackers, M. A., Diez Roux, A. V., & van Lenthe, F. J. (2019). Age-friendly cities: Challenges for future research. *Bulletin of the World Health Organization*, 97(6), 436–437. <https://doi.org/10.2471/BLT.18.224865>
- Nwanegbo, C. J. (2019). Youth empowerment, city integration and rural-urban migration in Anambra state of Nigeria. *Ubuntu: Journal of Conflict and Social Transformation*, 8(2), 129–156.
- Office of the Mayor. (2019). *Statement from Mayor Bowser on President Trump's threat to arrest and remove immigrant residents, Friday, June 21, 2019*. Office of the Mayor; see <https://mayor.dc.gov/release/statement-mayor-bowser-president-trump%E2%80%99s-threat-arrest-and-remove-immigrant-residents>
- Otiso, K. M. (2005). Kenya's secondary cities growth strategy at a crossroads: Which way forward? *GeoJournal*, 62(1), 117–128. <https://doi.org/10.1007/s10708-005-8180-z>
- Parnell, S., & Oldfield, S. (2014). *The Routledge handbook on cities of the global south* (1st ed.). Routledge, Taylor & Francis Group.
- Peñalosa, E. (2013). Why buses represent democracy in action. *TED Talk*, September; see [https://www.ted.com/talks/enrique\\_penalosa\\_why\\_buses\\_represent\\_democracy\\_in\\_action](https://www.ted.com/talks/enrique_penalosa_why_buses_represent_democracy_in_action)
- Refstie, H., & Silva, F. (2012). *Youth: The face of urbanization (English)* (CIVIS notes series; no. 6. Sharing knowledge and learning from cities). World Bank Group.
- Resnick, D. (2014). Urban governance and service delivery in African cities: The role of politics and policies. *Development Policy Review*, 32(s1), s3–s17. <https://doi.org/10.1111/dpr.12066>
- Roberts, B. H., & Hohmann, R. P. (2014). *The systems of secondary cities: The neglected drivers of urbanising economies* (No. 7, CIVIS Notes Series). World Bank Group; see <http://documents.worldbank.org/curated/en/400881468181444474/The-systems-of-secondary-cities-the-neglected-drivers-of-urbanising-economies>
- Satterthwaite, D. (2017). The impact of urban development on risk in sub-Saharan Africa's cities with a focus on small and intermediate urban centres. *International Journal of Disaster Risk Reduction*, 26, 16–23.
- Siba, E. (2019). *The new urban agenda and demographic dividend: Investments for Africa's youth*. Brookings Institution; see [https://www.brookings.edu/wp-content/uploads/2019/02/The\\_New\\_Urban\\_Agenda\\_20190131.pdf](https://www.brookings.edu/wp-content/uploads/2019/02/The_New_Urban_Agenda_20190131.pdf)
- Sidze, E. M., Lardoux, S., Speizer, I. S., Faye, C. M., Mutua, M. M., & Badji, F. (2014). Young women's access to and use of contraceptives: The role of providers' restrictions in urban Senegal. *International Perspectives on Sexual and Reproductive Health*, 40(4), 176–183. <https://doi.org/10.1363/4017614>
- Sommers, M. (2007). Creating programs for Africa's urban youth: The challenge of marginalization. *Journal of International Cooperation in Education*, 10(1), 19–31.
- Sommers, M. (2010). Urban youth in Africa. *Environment and urbanization*, 22(2), 317–332. <https://doi.org/10.1177/0956247810377964>
- Speizer, I. S., Corroon, M., Calhoun, L., Lance, P., Montana, L., Nanda, P., & Guilkey, D. (2014). Demand generation activities and modern contraceptive use in urban areas of four countries: A longitudinal evaluation. *Global Health, Science and Practice*, 2(4), 410–426. <https://doi.org/10.9745/GHSP-D-14-00109>
- The Republic of the Union of Myanmar, Department of Population, Ministry of Immigration and Population. (2015a). *The 2014 Myanmar population and housing census: Nay Pyi Taw (census report volume 3-O)*; see <https://myanmar.unfpa.org/sites/default/files/pub-pdf/Nay%20Pyi%20Taw%20Census%20Report%20-%20ENGLISH-3.pdf>
- The Republic of the Union of Myanmar, Ministry of Immigration and Population. (2015b). *The 2014 Myanmar population and housing census: Yangon Region (census report volume 3-L)*; see <https://myanmar.unfpa.org/sites/default/files/pub-pdf/Yangon%20Region%20Census%20Report%20-%20ENGLISH-3.pdf>
- UNFPA. (2020a). *Family planning*. United Nations Population Fund; see <https://www.unfpa.org/family-planning>. Accessed 9 Feb 2021.
- UNFPA. (2020b). *Three things you need to know about contraceptives and COVID-19*. United Nations Population Fund; see <https://www.unfpa.org/news/three-things-you-need-know-about-contraceptives-and-covid-19>. Accessed 9 Feb 2021.
- UNFPA. (2020c). *State of world population 2020: Against my will – Defying the practices that harm women and girls and undermine equality*. United Nations Population Fund; see <https://www.unfpa.org/swop>
- UN-Habitat. (2010). *State of the world's cities 2010/2011 – Cities for all: Bridging the urban divide*. United Nations Human Settlements Programme.
- UN-Habitat. (2016a). *Slum almanac 2015–2016*. United Nations Human Settlements Programme.
- UN-Habitat. (2016b). *World cities report 2016*. United Nations Human Settlements Programme.
- United Nations. (2013). *UN high-level dialogue on international migration and development*. Keynote Speech by Secretary-General Ban Ki-moon. United Nations; see <https://www.un.org/sg/en/content/sg/statement/2013-10-03/secretary-generals-remarks-high-level-dialogue-international>
- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. Resolution adopted by the General Assembly on 25 September 2015. United Nations.
- United Nations. (2016). *HABITAT III: Regional report, Africa: Transformational housing and sustainable urban development in Africa*. United Nations; see <http://habitat3.org/wp-content/uploads/Habitat-III-Regional-Report-Africa.pdf>

- United Nations. (2017). *New urban agenda, resolution adopted by the General Assembly on 23 December 2016 General Assembly on UN-Habitat III*. United Nations.
- United Nations. (2018). *World urbanization prospects: The 2018 revision*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2019). *The 2019 revision of world population prospects*. Department of Economic and Social Affairs, Population Division; see <https://population.un.org/wpp/>
- United Nations. (2020). *World social report 2020: Inequality in a rapidly changing world*. United Nations: Department of Economic and Social Affairs.
- United Nations Statistical Division. (2020). *A recommendation on the method to delineate cities, urban and rural areas for international statistical comparisons*. Background document for the 51st session of the UNSD, New York, March 3–6, 2020. United Nations, Statistical Division.
- Vearey, J., Thomson, K., Sommers, T., et al. (2017). Analysing local-level responses to migration and urban health in Hillbrow: The Johannesburg Migrant Health Forum. *BMC Public Health*, 17(427), 89–93. <https://doi.org/10.1186/s12889-017-4352-2>
- Wang, C., Myint, S. W., Fan, P., Stuhlmacher, M., & Yang, J. (2018). The impact of urban expansion on the regional environment in Myanmar: A case study of two capital cities. *Landscape Ecology*, 33(5), 765–782. <https://doi.org/10.1007/s10980-018-0632-1>
- WHO. (2007). *Global age-friendly cities: A guide*. World Health Organization.
- WHO. (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health – Final report of the commission on social determinants of health*. World Health Organization.
- WHO. (2018). *The global network for age-friendly cities and communities: Looking back over the last decade, looking forward to the next*. World Health Organization; see <https://www.who.int/publications/item/WHO-FWC-ALC-18.4>
- WHO. (2020). *Pulse survey on continuity of essential health services during the COVID-19 pandemic: Interim report*. World Health Organization.
- WHO & UN-Habitat. (2010). *Hidden cities: Unmasking and overcoming health inequities in urban settings*. World Health Organization.
- WHO & UN-Habitat. (2016). *Global report on urban health: equitable healthier cities for sustainable development*. World Health Organization; see <https://apps.who.int/iris/handle/10665/204715>
- Winston, J., Calhoun, L. M., Corroon, M., et al. (2018). Impact of the Urban Reproductive Health Initiative on family planning uptake at facilities in Kenya, Nigeria, and Senegal. *BMC Women's Health*, 18(9), 1–8. <https://doi.org/10.1186/s12905-017-0504-x>
- World Bank. (2017). *Africa's Pulse, No.16*. World Bank Group; see <https://openknowledge.worldbank.org/handle/10986/28483>
- World Bank. (2018a). *Groundswell. Preparing for internal climate migration*. World Bank Group.
- World Bank. (2018b). *Transportation forum 2018*. World Bank Group; see <https://live.worldbank.org/experts/enrique-penalosa>
- World Bank. (2020). *Health indicators*. World Bank Group; see <https://data.worldbank.org/indicator/SP.DYN.CBRT.IN?view=chart>
- World Economic Forum. (2017). *Migration and its impact on cities*. World Economic Forum (WEF).
- World Population Review. (2020). *Mumbai population 2022*. World Population Review; see <https://worldpopulationreview.com/world-cities/mumbai-population/>. Accessed 11 Apr 2020.
- Yañez-Pagans, P., Martínez, D., Mitnik, O., Scholl, L., & Vazquez, A. (2019). Urban transport systems in Latin America and the Caribbean: Lessons and challenges. *Latin American Economic Review*, 28(15), 1–25.



# Policies Needed to Capture Demographic Dividends

# 19

Vincent Turbat

## Introduction

In recent years, discussions on how to capture a demographic dividend have come to dominate the debate on international development, particularly in sub-Saharan Africa (World Bank, 2015; Groth & May, 2017). The demographic dividend concept, which was developed in the seminal paper of Bloom et al. (2003), is encapsulated in the rapid economic growth (about 7% per year) that resulted from a rapid demographic transition experienced by the four East Asian countries (the Four Asian Tigers) between the early 1960s and 1990s. Our chapter's common thread is whether sub-Saharan and North African countries will be able to implement the policies needed to generate demographic dividends (both first and second). To answer this question we review the relevant policies under four main categories: (i) population policies needed to open the “demographic window of opportunity”, which is the necessary condition ; (ii) economic and labor policies needed to provide jobs to the population “bulge” entering the labor market; (iii) social welfare (including health and education) policies needed to ensure that the working age population is productive and able to work, as well as that households are able to financially cover their

basic needs; and (iv) fiscal and monetary policies needed to sustain the economic growth and generate a second demographic dividend. The first three sets of policies will be linked to the dependency burden as assessed through three different dependency ratios: a Demographic Dependency Ratio (DDR), an Employment Dependency Ratio (EDR), and a Socioeconomic Dependency Ratio (SDR).

In the first part of this chapter, we revisit the concept of the first demographic dividend and focus on the pivotal role of the dependency ratio. We then analyze the three different dependency ratios mentioned above, for each of which we provide estimated data. In the second part, we spell out the different policies that are needed to generate a first demographic dividend and assess whether most sub-Saharan and North African countries have the willingness and capacity to implement those. In the third part of the chapter, we outline the macroeconomic and sectoral policies that are needed to sustain growth and generate a second demographic dividend. Finally, in the fourth part of the chapter, we provide some elements to help evaluate the prospects for African countries to capture a first demographic dividend by 2035.

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## The Dependency Ratios, Main Indicators of a First Demographic Dividend's Potential

Today's development projects, such as the World Bank's *Sahel Women Empowerment and Demographic Dividend* (SWEDD) project (World Bank, 2014), put the pursuit of a demographic dividend at the top of the list of actions that less developed countries should undertake. The project's main development objective is to help these countries implement the policies that would: (1) open a demographic window of opportunity; (2) provide jobs to the working age population bulge that results from the demographic transition; and (3) ensure that an increasing number of people are self-sufficient.

## The Demographic Dividend

The concept of demographic dividend is an addition to the long list of works which aim at assessing the impact of population growth on economic growth. It is now well documented that the concept of demographic dividend has been developed on the basis of an *ex post* analysis of the rapid growth in the four East Asian countries (that are called "tigers" or "dragons") during the period covering the early sixties to the nineties. The four tiger countries are: Hong-Kong, Singapore, South Korea, and Taiwan.

Just before these countries experienced what Rostow (1960) calls a "take off" (characterized by an exponential economic growth rate), the Tiger countries experienced a *demographic transition*. The latter begins with a marked decrease in mortality rates, especially infant (under 1 year or U1) and child (U5) mortality rates. This translates into rapid growth of the general population, and especially the most youthful part of it.

After a period of variable duration, the total fertility rate (TFR) starts also to decrease. If the decline is sharp, this translates into a marked reduction of the crude birth rate and therefore of the population growth rate. In the case of the Tiger countries, it is worth noting that: (i) the

time lag between the start in the reduction of mortality and the start in the reduction of fertility rates was quite short (about 10–15 years); and (ii) the decrease rate in both mortality and fertility rates was rather sharp (see below). These two elements, along with favorable macroeconomic conditions and the choice of the right macroeconomic policies, explain the high impact of the demographic transition on the economy of these countries.

The "baby boom" or "population swell" (Bloom et al., 2003) that results from the decrease in mortality rates while fertility rates remain at a high level (first stage of the demographic transition) will progressively be accompanied by a change in the age structure of the population. And when the "baby boomers" reach working age (which is usually defined as being 15–64), while the subsequent fertility decline reduces the growth of the very young (second stage of the transition), the ratio between the Under 15 (U15) plus the 65-and-over population and the 15–64 population also starts to change. This ratio—between the young dependents plus old dependents and the working population—will decrease, and thus improve, presenting an opportunity to benefit from a first demographic dividend.

The first demographic dividend can be defined as an economic surplus resulting from a relative increase of the employed working-age population as compared to the dependents, in particular the young (U15) dependents (Turbat, 2017). This economic surplus is generated by two elements: (i) the release of resources due to a decrease in the dependency ratio, so that fewer resources are spent sustaining non-workers; and (ii) an increase in Gross Domestic Product (GDP) due to the arrival of the "boom generation" on the labor market. This economic surplus translates into a considerably greater amount of resources, expressed in terms of GDP. These additional resources are in excess of what is needed to cover the current needs of the dependents, and are available either for investment in both fixed and human capital and/or for additional consumption (May & Turbat, 2017).

It should be noted that a second demographic dividend could also be triggered, but on a longer term. This second demographic dividend would result from an increase in adult longevity, which causes individuals to save more in preparation for old age. This increase in savings can thus contribute to capital accumulation and further boost economic growth (see Lee & Mason, 2006). In this first section, we only address the prospects of, and the policies for, capturing the first demographic dividend in sub-Saharan and Northern Africa.

Besides the time lag and the pace of the demographic transition, a second element will be key in the occurrence and magnitude of a first demographic dividend: the timing of the opening of the demographic window of opportunity (Parant & Hommel, 2019) needed to generate a demographic dividend. There are three main formulations of this opening (May & Guengant, 2020). The first is to consider that the window of opportunity opens when (i) the percentage of U15 reaches 30% and below of the total population; and (ii) those aged 65 years and over remain below 15% of the total population. Using the UN 2019 population projections, May and Guengant (2020) obtained different results for the Low and High variants projections of the United Nations. As of 2020, only five sub-Saharan African countries meet the two age conditions above.

A second formulation is that the window of opportunity opens when the demographic dependency ratio (the number of U15 and 65 years and over, divided by those aged 15–64 years) becomes equal or less than 0.6. May and Guengant (2020) found that six sub-Saharan African countries already have such a dependency ratio.

The third formulation, which we are adopting in this chapter, is that the window of demographic opportunity opens when the working age population (15–64) is growing faster than the total population, and especially than the young population (U15) as a result of a decrease in the fertility rate. As all sub-Saharan African and North African countries started their fertility decline, this implies that the demographic window of

opportunity is open in the whole of Africa. However, some Central and West African countries just entered this window, and very timidly so, as they still have high dependency ratios. Others, mostly in East and Southern Africa, are in the middle. And a few, mostly in Southern Africa and North Africa, are entering the last stage of this process.

## The Dependency Ratios

To measure the burden of dependency<sup>1</sup>, a common indicator is the ratio of young and old dependents to the working age population, a ratio that varies as a country moves through its demographic transition (Bongaarts, 2009). In this chapter, we call the dependency ratio based on age groups the Demographic Dependency Ratio or DDR. Following a modest initial rise, the DDR typically undergoes a prolonged period of decline that is closely linked to the decline in fertility. The timing, duration, and magnitude of the decrease in the DDR in mid-transitional societies are largely determined by the timing, duration, and magnitude of their fertility declines.

The DDR's formula has the dependents (U15 plus 65 and over, noted 65+) at the numerator, and the working age population at the denominator. The working age population will be labeled as providers [also called supporters in the National Transfer Accounts (NTAs)], as they are providing for (or supporting) the dependents. The higher the ratio, the heavier is the dependency burden (each provider supporting a higher number of dependents).

<sup>1</sup> The concept of dependency burden is in many respects similar to the global burden of disease as dependency is considered as a global cost that should be borne by the whole economy of a country, and especially by those who are contributing to the GDP of this economy. This global cost includes all direct (at household level) and indirect (at meso and macro levels) expenditures that are needed to bring an educated and healthy youth to working age as well as ensuring a decent retirement to the elderly.



$$\begin{aligned}
 DDR &= \frac{(\text{Number of people aged 0 to 14 and 64 and over})}{(\text{Number of people aged 15 to 64})} \times 100 \\
 &= \frac{U15 + 65+}{15 - 64} \times 100
 \end{aligned}$$

However, this first estimate of the burden of dependency needs to be re-examined for two main reasons. First, on the dependents' side, today's children remain dependents well beyond age 15 in the less developed countries (as it has been the case in the more developed countries for some time), and older people often fall again in the dependents' category before they reach the age of 65. This is why the UN Population Division calculates two different dependency ratios, one with U15 and another with U20. As expected, our calculation of DDRs with U19 and 65 and over at the numerator and 19–64 at denominator, shows that the DDR U15 underestimates the actual demographic dependency burden. Second, and more importantly, on the providers' side, a

sizeable portion of the working age population might be unemployed and, therefore, should be added to the dependents at the numerator and subtracted from the number of working age people at the denominator. It could be argued that people who are under-employed should be treated similarly, although accurate data on under-employment are usually hard to obtain.

We therefore calculate an "Employment Dependency Ratio" (EDR), which we define as the number of people that are unemployed (or inactive), whatever their age, divided by the number of people that are working (employed, including self-employed, or active), whatever their age. The formula is as follows:

$$EDR = \frac{(\text{Under 15} + 65+) + (\text{Unemployed 15 to 64}) - (\text{Employed U15 and 65+})}{(\text{15 to 64}) - (\text{Unemployed 15 to 64}) + (\text{Employed U15 and 65+})} \times 100$$

or, in short,

$$EDR = \text{Unemployed/Employed} \times 100$$

The comparison between the DDR and the EDR shows that the DDR systematically underestimates the dependency burden (see Table 19.1). However, the EDR is still not an accurate assessment of the dependency burden (i.e., the financial burden on the active people who need to support the dependents) as it does not consider the situation of those who are employed at a wage which is under the minimum needed to support oneself and family as well as those who are unemployed but self-sufficient. We therefore need to calculate a dependency ratio that assesses the ratio between people who are financially self-sufficient and those who are not.

This ratio is usually called a support ratio (see United Nations, 2013; Cutler et al., 1990), and

focuses on the evolution of the ratio between workers and consumers. However, this ratio is defined in different ways. Some count each person in the 15–64 age range as one worker and each member of the population as one consumer (the demographic approach). The NTAs use a more economic approach: the effective number of workers, the numerator, is a composite number that incorporates age variation in labor force participation, hours worked, unemployment, and productivity or wages; while the effective number of consumers, the denominator, incorporates age-specific variation in consumption.

To assess the ratio between the people who benefit from financial assistance and those who do not, we are using what we call a "Socioeconomic Dependency Ratio" (SDR) which we define as the number of people who have a total consumption higher than their total income – and

**Table 19.1** Comparison DDR with EDR, 2016

Sub-Saharan Africa, North Africa, and Asia Regions	(DDR)	(EDR)
NORTH AFRICA		
TOTAL	60.5	266.0
WESTERN SSA		
TOTAL	85.3	146.8
CENTRAL SSA		
TOTAL	84.3	130.0
EASTERN SSA		
TOTAL	78.9	120.2
SOUTHERN SSA		
TOTAL	52.8	151.4
EASTERN ASIA		
TOTAL	<b>59.4</b>	<b>76.4</b>

Source: Linyu Li (Ms. Linyu Li is an experienced programmer with a Master Degree in Health Information and Data Science. As the author's Research-Assistant, she did most of the calculations, including the previsions, of this chapter. The author wants to thank her for her dedication and quality of work) and author

therefore need to be partially or wholly financially supported – divided by the number of people who have a total income –generated by an economic activity – higher than their total consumption. In other words, the dependents under the SDR are all

the people who are not self-sufficient and need some financial assistance to cover their basic needs.

The Socioeconomic Dependency Ratio (SDR) formula reads as follows:

$$SDR = \frac{(\text{Number of People whose Income is } < \text{Consumption})}{(\text{Number of People whose Income is } > \text{Consumption})} \times 100$$

or in short,

$$SDR = \frac{(\text{Unemployed} + \text{Employed but not self-sufficient})}{\text{Employed and self-sufficient}}$$

This dependency ratio is similar to the “Support Ratio” as spelled out by the CREFAT research center for the SWEDD countries (see World Bank, 2014),<sup>2</sup> but different from the NTA’s (ratio between the number of effective workers and the number of effective consumers, i.e., the whole population). The main difference resides in the fact that the CREFAT’s ratio has the

supporters at the numerator and the dependents at the denominator. As for the EDR, the SDR calculation is made difficult by the paucity of relevant primary data.

As can be seen in Table 19.1, the DDR of the four regions of sub-Saharan Africa, North Africa and East Asia grossly underestimates the real dependents’ burden on the economy of a region, when compared to the EDR. Also, North Africa and Southern Africa, despite their low DDR, have the highest EDRs. This highlights the importance of having employment policies to absorb the youth bulge resulting from the demographic transition. EDR is without a doubt a much better, albeit insufficient, indicator of the “dependency burden”.

In Table 19.2, we compare the three dependency ratios (DRs) for a selected number of African and East Asian countries, because we were

<sup>2</sup> The Sahel Women’s Empowerment and Demographic Dividend (SWEDD) project countries are Benin, Burkina Faso, Chad, Cote d’Ivoire, Mali, Mauritania and Niger.

**Table 19.2** DDR, EDR, and SDR in selected countries, 2016

Countries	DDR	EDR	EDR exceeds DDR by	SDR	SDR exceeds DDR by	EDR exceeds SDR by
Algeria	55.0	279.0	225.0	N.A.	N.A.	N.A.
Egypt	64.0	261.0	197.0	N.A.	N.A.	N.A.
Morocco	52.0	229.0	176.0	N.A.	N.A.	N.A.
Tunisia	47.0	233.0	186.0	N.A.	N.A.	N.A.
Ghana (GHA)	70.0	157.7	87.6	141.5	71.4	16.1
Mali (MLI)	101.9	193.0	91.1	151.8	49.9	41.1
Benin (BEN)	86.1	153.4	67.3	144.5	58.4	8.9
Burkina Faso (BFA)	92.2	195.1	102.9	123.2	30.9	71.9
South Africa (ZAF)	52.2	245.8	193.5	80.5	28.2	165.3
Ethiopia (ETH)	83.9	119.3	35.4	104.9	21.0	14.4
Mozambique (MOZ)	93.5	140.5	47.0	107.4	13.9	33.0
Republic of Korea (KOR)	36.3	92.6	56.3	93.0	56.7	-0.4
China (CHN)	37.7	83.0	45.3	87.9	50.2	-4.9
Japan (JPN)	63.9	98.3	34.3	121.7	57.7	-23.4

Source: Linyu Li and author

unable to calculate those at regional level (due to a lack of data for the SDR). Several elements are worth noting: (1) there are large discrepancies among regions and countries for each of the DRs; (2) in all countries, the EDR is systematically higher than the DDR and the SDR is systematically higher than the DDR; and (3) in most countries, the SDR is lower than the EDR.

The large discrepancies are reflecting several elements. First, the selected regions and countries are not at the same phase of the demographic transition. For example, Japan has already started its second demographic transition (Lesthaeghe, 2010) in which the TFR is under the replacement rate of 2.1 and the 65+ population is the fastest growing part of the population; South Korea and North African countries are just beginning their second demographic transition; China is at its lowest DDR thanks to the One-Child policy; Ethiopia is currently experiencing a stalled TFR; and Burkina Faso and Mali have yet to experience a significant decline of their TFR. Second, the economic development level varies from highly developed to low income, and this directly impacts the employment and income levels. And third, the population and economic policies that have been implemented, which vary greatly in magnitude and efficacy, have had diverse impacts on the dependency ratios.

As expected, as it includes the unemployed working age population in the dependents' category, the EDR reflects this additional burden (which is far from being compensated by the employed non-working age population). Most less developed countries, especially in sub-Saharan Africa, but also middle-income countries as in North Africa, have a very weak labor market absorptive capacity and, as a result, a large share of the population bulge generated by the demographic transition goes directly from the status of dependent due to being under working age to the status of dependent because of unemployment.

The SDR is also systematically higher than the DDR, but the difference is generally less than that between the EDR and the DDR. Contrary to what might be expected, the EDR is mostly higher than the SDR. We could find several explanations for this result. First, employment, income, and consumption data are not collected uniformly. In this instance, we have used ILO data (ILO, 2013, 2016) and filled gaps with World Bank data (World Bank/International Monetary Fund, 2016) for employment, and the National Transfer Accounts for the income/consumption data. Second, many people that are informally employed are not recorded as employed, but can be more or less self-sufficient. Third, the category

“employed” as in ILO and “self-sufficient” do not fit in the logical progression that goes from working age to self-sufficient as a self-sufficient person might not be recorded as employed. However, the main explanation is that the consumer category, as calculated by the NTAs, also includes providers.

What is needed is an evaluation of: (i) the population that is both working and self-sufficient (the providers); and (ii) the population that is either not working or working but not self-sufficient (the dependents). That way, we would have a logical progression in the measure of the dependency burden: the dependents are (1) the non-working age population; (2) the unemployed population; and (3) the non-self-sufficient population.

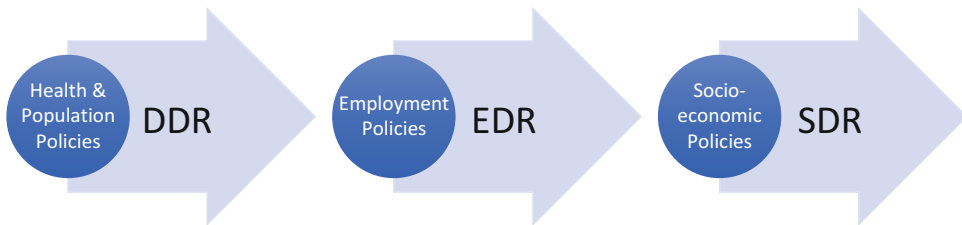
Our first finding is that one cannot base a study on the prospects of a first Demographic Dividend in sub-Saharan Africa solely on the basis of the DDR, as it clearly underestimates the burden of dependency. As we can see in Tables 19.1 and 19.2, the DDR can be low as a result of a low TFR and yet the EDR can be very high as a result of a large unemployed population. To base predictions solely on the DDR would likely lead to erroneous conclusions. For more accurate provisions, calculation of the EDR and/or SDR are needed.

### Policies That Need to Be Implemented for Countries to Benefit from a First Demographic Dividend

In order to capture a first demographic dividend, a less developed country will need not only to

improve the DDR, but also the EDR and the SDR. In this section, we focus on the policies that a country needs to implement to improve its dependency ratios and thus seize the chance to benefit from a demographic dividend. We classify the conditions to be met in two main categories: the necessary conditions (to open the demographic window of opportunity), and the sufficient conditions needed to benefit from a large demographic dividend (Groth et al., 2019). The fulfillment of these various necessary and sufficient conditions follows a logical as well as a chronological sequence. Figure 19.1 offers a summary of the conditions that policymakers will need to meet in order to capture a first demographic dividend.

First, health and population policies aiming at decreasing both mortality and fertility rates need to be put in place. Today, as all sub-Saharan Africa countries have, at a minimum, entered the first phase of the demographic transition, the health policies will aim at accelerating the decline in mortality rates, focusing on infant and child mortality rates and maternal mortality ratios. However, a swift and sharp decrease of fertility is the most important policy lever to open a demographic window of opportunity, improve the DDR, and benefit from a first demographic dividend (May & Turbat, 2017). Such a fertility decline is necessary as it will reduce the growth rate of the young dependents (U15) below that of the working age population, which will result in a decline of the DDR, which, in turn, will result in an opening of the demographic window of opportunity. The faster the fertility decline, the fewer young dependents and the more resources for



**Fig. 19.1** Policies impacting respectively the Demographic Dependency Ratio (DDR), the Employment Dependency Ratio (EDR), and the Socioeconomic

Dependency Ratio (SDR). (Source: Author; initially published in Groth et al., 2019)

investments. However, the demographic window of opportunity will not last forever because the population will inexorably start to age. The older dependents will eventually grow faster than the working age population and therefore the window of opportunity will eventually close and the dependency burden will increase again.

The first step for policies aiming to reduce fertility will be to improve and expand the supply of family planning services, namely programs that offer reliable information and quality services (May, 2012). The current level of contraceptive use for modern methods in sub-Saharan Africa is currently estimated at 28% (Population Reference Bureau, 2020), whereas it will be necessary to reach a contraceptive prevalence rate (CPR) of about 75% to achieve the contraceptive revolution and reach replacement level fertility. Despite some exceptions (e.g., Rwanda and Ethiopia; see World Bank, 2007), most sub-Saharan African countries currently experience a very low growth rate of their CPR, at about 0.6 percentage points per year (May, 2017). Therefore, it is necessary to increase the uptake of modern contraception. A rate of increase of contraceptive coverage of at least 1.5 percentage points per year appears to be an ambitious but feasible target. The programmatic challenge is not only to attract new family planning acceptors but also to retain current users. Also, health programs, especially those targeting children and mothers, should be reinforced to accelerate the decline in mortality rates and especially infant and child mortality rates, and maternal mortality ratios (May & Rotenberg, 2020).

If properly implemented, as they have been in countries such as South-Africa, Botswana, Kenya, Rwanda and Ethiopia, the population and health policies should result in a decrease of the DDR, a necessary condition for opening the demographic window of opportunity. However, other policies are still needed to significantly increase the prospects of capturing a first demographic dividend: (i) labor market policies that aim at increasing employment and therefore improve the EDR; (ii) socioeconomic policies that aim at increasing the employed population's purchasing power, which should result in an increase in the number of people who are both

employed and self-sufficient, and therefore improve the SDR; and (iii) macroeconomic policies that aim at boosting investments in the most growth-inducing sectors, including investments in health and education.

To improve the EDR, a government's priorities should be to increase the labor market's absorptive capacity to the level of the youth bulge that will reach the working age as a result of the decline in child mortality and the modification of the age structure that ensues (Eberstadt, 2017; Lee et al., 2016). In case of failure to do so, the youth will likely end up reacting to chronic unemployment either through out-migration and/or social unrest. In both cases, this would negatively impact the prospects of capturing a first demographic dividend.

Countries such as Kenya, Ivory Coast, Ghana, Lesotho, Zambia, Senegal, Cameroon and Mauritania have increased their wage employment by: (i) improving their business-climate (as estimated by the Doing Business Index of the World bank), which resulted in the entrance of new firms, both local and foreign, on the national markets; and (ii) targeting the youth.

The International Labor Organization (ILO, 2016) estimated that the global youth unemployment rate in developing countries was expected to reach 9.4%, or 7.9 million youth in 2017. In addition, the ILO noted that wide disparities exist between young women and men, underpinning and giving rise to wider gaps during the transition to adulthood. In 2016, for instance, the labor force participation rate for young men stood at 53.9% compared to 37.3% for young women – representing a gap of 16.6 percentage points. Also, millions of young people in low-income countries continue to leave school to take up jobs when they are still very young. According to the ILO, 31% of youth in low-income countries have no educational qualifications at all, compared to 6% in lower middle-income countries and 2% in upper middle-income countries. And if we factor in the current COVID-19 pandemic that will have a significant direct impact on girls' education – as many of them will not return to school when the lockdowns are lifted – we can foresee a rising

unemployment rate among the newcomers on the labor market.

In addition to being the most unemployed age group, the youth are more likely to be employed in the informal sector, at low wages and without social protection. They thus constitute a large share of what is called the “working poor”, meaning that their income is below the living wage, and therefore cannot cover their basic needs. Finally, there are large discrepancies among the youth. Kipsha and Msigwa (2013) list five criteria, namely gender, geographical location, education, skills, and marital status as significant factors explaining the difference in youth employment status.

A relevant employment policy should therefore focus on the youth, and not only when they arrive on the labor market. It should start much earlier through their education, with a special focus on girls’ education, their skills, and their health. Rural labor markets need to be boosted to slow down the current out-migration flows that start from the remotest areas to end up via the slums of the capital cities in European camps, if not on a slave market or in the sea bottom. Also, the plague of the informal sector needs to be effectively addressed, especially at the level of urban labor markets. Data clearly show that most people, and especially the youth, who are “employed” in the informal sector live under the poverty line.

Even if a government succeeds in increasing youth employment, the impact on the SDR might be minimal in case of a large number of “working poor”. The latter are recorded as employed, and therefore in the denominator of the EDR. However, because they receive less than a living wage, they are among the dependents in the numerator of the SDR. The condition of being in the working poor continues to disproportionately affect youth, albeit with considerable regional differences. For example, sub-Saharan Africa continues to suffer the highest youth working poverty rates globally, at almost 70%. As observed in many economies, there is growing evidence of a shift in the age distribution of poverty, with youth taking the place of the elderly as the group at the highest risk of poverty (defined

for the more developed economies as earning less than 60% of the median income). The challenge is particularly acute in some countries where the at-risk-of-poverty for young workers exceeds 75%.

Cunningham (2007) suggests that the minimum wage is an attractive policy tool for governments that aim at reducing poverty and promoting social justice as the resulting increase is mostly born by the employers. However, because the minimum wage is often tied to social programs, an increase in minimum wage might exacerbate deficit issues. Cunningham (2007) also notes that the salaries of workers both in the formal and informal sector increase as a result of a raise in the minimum wage, and that the minimum wage is more binding in the informal than the formal sector, contrary to what is usually assumed. Terrell and Almeida (2008) confirm Cunningham’s conclusion that an increase in the minimum wage tends to have a positive wage effect. They also find only a small increase in unemployment among workers covered by minimum wage legislation.

Some countries, such as Eswatini, Kenya, Senegal and Tanzania, implemented wage policies that resulted in mean wages (in USD PPP) much higher than their neighboring countries (up to seven times). However, except for Kenya, their minimum wage (in USD PPP) is not much higher than that of their neighbors.

With regard to social policies, a clear distinction should be made between those that aim at increasing the benefits of the employed population, and will mostly be paid by the employers, and those that are paid by the active population, mostly via taxes, to support the dependents. The first should result in a decrease in the dependency burden for the employed population, while the second would result in an increase of the dependency burden for the employed population. The economic burden of dependency cannot be measured only by the number of dependents. It has to be measured by the amount (amount per dependent multiplied by the number of dependents) that is transferred to the dependents. Only policies that increase the income of the active population would improve the SDR,

through an increase in the number of employed and self-sufficient. A raise in the social benefits of the unemployed and employed but not self-sufficient would simply result in an increase of the SDR, and indeed a deterioration.

As underlined above, countries that achieve their demographic transition will not automatically benefit from a demographic dividend. Achieving the first demographic dividend depends on institutions and policies that will transform changes in the population's age structure into economic growth (Bloom & Canning, 2001). Therefore, it comes as no surprise that some least developed countries' (LDCs) economies that could benefit substantially from the demographic transition are also those that are more likely to fail in taking advantage of this process. Insufficiently developed labor markets, poor labor market regulation, weak social protections, an over-blown informal sector, low investments in human capital, tax evasion, socio-economic inequality, and lack of well-regulated capital markets are some of the constraints that limit the ability of LDCs to benefit from changes in their population's age structure. Despite the consensus among scholars on most of these issues, additional research is still needed on the linkages between the demographic transition and policy environment and especially on: investing in disease prevention and public health; offering free public education; providing inclusive access to financial services; investing freed resources and additional GDP; developing open trade and pro-industrial policies; encouraging foreign direct investment and creating stable and secure administrative system (Patierno et al., 2019).

### **Policies to Be Implemented to Sustain Economic Growth and Benefit from a Second Demographic Dividend**

Once a country has started to experience economic growth as a result of a decreasing dependency ratio, the new challenge is to sustain economic growth and generate a second demographic dividend. Policies to be implemented in

this second phase will be classified in two categories: (1) policies aiming at sustaining economic growth; and (2) policies aiming at benefiting from a second demographic dividend.

#### *Sustaining Economic Growth*

Policies to sustain economic growth and development in LDCs are built on seven pillars (Pettinger, 2019):

- Macroeconomic stability (create a stable economic climate of low inflation and positive economic growth);
- Diversification away from agriculture by development of manufacturing (stimulate private sector investment);
- Export oriented development;
- Investment in public services (government interventionist supply-side policies aiming at increasing spending on "public goods" such as healthcare, education and public transport);
- Effective tax collection;
- Good governance (less restrictive regulation and less corruption); and
- Foreign aid.

Ethiopia (annual growth rate of 9.9% between 2010 and 2017; 9.0% in 2019), Rwanda (annual growth rate of 6.7% between 2010 and 2017; 9.4% in 2019), Tanzania (annual growth rate of 6.6% between 2010 and 2017; 7.0 in 2019) and Uganda (annual growth rate of 5.3% between 2010 and 2017; 8.0% in 2019) are good examples of countries that were able to sustain economic growth (prior to the COVID-19 pandemic).

Macroeconomic stability would involve a commitment to low inflation. Low inflation creates a climate where foreign investors have more confidence to invest in that country, as high inflation can lead to devaluation of the currency and discourage foreign investment. Without the latter, local investment would be insufficient to sustain economic growth. To create a low inflationary framework, it is necessary to put in place:

- effective monetary policy (the Central Bank controls inflation by means of a sound monetary policy); and

- disciplined fiscal policy i.e., avoid large budget deficits.

A potential problem of macroeconomic stability is that in the pursuit of low inflation, higher interest rates can conflict with lower economic growth – at least in the short term. Sometimes, countries have pursued low inflation with great vigor, but at a cost of recession and higher unemployment that negatively impacts the EDR. This creates a constraint on economic development. The ideal is to strike the right balance between the rate of inflation and the rate of sustainable economic growth. Also, macroeconomic stabilization may involve policies to reduce government budget deficits. However, this may involve spending cuts on social sector programs. This would negatively impact self-sufficiency and therefore the SDR.

A constraint LDCs may face is that their current comparative advantage could be in the production of primary products. The latter often limit the economic development due to volatile prices, a low-income elasticity of demand and their finite nature. Therefore, economic development may require government encouragement of new industries in different sectors, such as manufacturing. This may require a temporary commitment to tariffs. Attempts to diversify away from agriculture can have mixed results. Sometimes, countries with a poor basic level of infrastructure struggle to make effective use of capital investment in manufacturing.

One of the challenges developing economies often face is to effectively tax and collect what they are supposed to. If the government is unable to collect sufficient tax from the richest parts of the economy (e.g., production of natural resources) there will be insufficient funds to finance the necessary public sector investment in services with high social benefit. For example, the average tax rate in sub-Saharan Africa is only 15% of GDP – compared to an average of 40% of GDP in the more developed world. But average revenue collection rates in sub-Saharan African countries stood below this 15% of GDP. They increased very slightly recently. However, most of this slight increase came from sources such as value added taxes, which tend to burden the poor

more heavily than the wealthy (indirect taxes are regressive by nature).

Some LDCs are held back by over-restrictive regulation, corruption and high costs of doing business. To attract both domestic and inward investment, it is necessary to remove these costs and create a climate which is conducive to business through good governance. Corruption is often one of the biggest constraints to economic development as it discourages investors, both local and foreign.

In areas such as education, healthcare, and transport, there is often market failure – the free market does not provide sufficient levels of health or education. A key factor in improving economic development is to improve health status indicators and increase levels of literacy and numeracy. Without a healthy workforce and basic levels of education and training, productivity will not increase and the economy will not develop into higher value-added industries. Patience is required, inasmuch as investment in health and education takes a long time to feed through into higher rates of economic growth. Nonetheless, these investments are essential to sustain growth and reach higher levels of development.

## Generating a Second Demographic Dividend

The second demographic dividend follows more or less automatically if growth is sustained and savings are encouraged, but its full potential will be realized only to the extent that policymakers respond effectively to the demographic changes (Lee & Mason, 2006). With the upcoming increase of the SDR due to population aging, consumption can be maintained only through accumulation of wealth.

One option consists in asset accumulation, either directly by individuals or indirectly by governments. If invested in the economy, these assets should translate into an accelerated growth in productivity (output per worker, i.e., GDP/capita). If invested abroad, these assets would result in an accelerated growth of national



income (GNI). In both cases, income per effective consumer will grow more rapidly, yielding a second demographic dividend (Lee & Mason, 2006).

A second option is to accumulate wealth transfers, which are claims against future generations. Two institutional arrangements can be used to accumulate wealth transfers.

First, governments can establish transfer programs of which Pay-As-You-Go (PAYGO) pension programs are the most prominent example. Under these arrangements, pension benefits of current retirees are paid by taxing current workers. Wealth transfer for current generations is created because future generations will be obligated to pay future pension benefits to current generations. However, weaknesses in the governance and management of PAYGO pension programs can lead to negative effects for the demographic dividend (Turra & Queiroz, 2005). For example, if greater tax evasion or excessive increases in social security benefits offset increases in the share of working age population and productivity gains, the fiscal capability of governments to invest in human capital will be reduced. In turn, efficiency loss may lower the effect of the demographic transition on both future productivity and economic growth. Rising social security dependency ratios (i.e., the ratio of beneficiaries to social security taxpayers) represent a fiscal burden for the future working age population, reducing their ability to save for their future consumption and thus putting at risk the second demographic dividend.

Second, families can transfer wealth by undertaking intergenerational transfers. Under these arrangements, working-age family members provide support to family members who are retired and, in turn, expect to receive support from their adult children upon reaching retirement. Familial support systems transfer wealth for current generations and create implicit debt for future generations just as public support systems accomplish this through PAYGO pension programs. In both cases, population aging causes no initial reduction in consumption since no funds are set aside for capital formation.

As mentioned by Lee and Mason (2006), transfer of wealth and assets are close substitutes as a means of reallocating resources across the life

cycle. Either can be used to sustain the consumption of less productive age groups. Wealth and assets transfer differ, however, in that wealth transfer, unlike asset accumulation in which wealth can be invested, has no effect on economic growth or per capita income, and thus does not yield a second demographic dividend.

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### **Prospects to Achieve a First Demographic Dividend in North African and Sub-Saharan African Countries**

Looking at the probable evolution of the DDR (United Nations, 2019), we observe that most sub-Saharan African countries (except South Africa) will experience a decrease in their DDR while, by comparison, North African (except for Libya) and East Asian countries will experience an increase of their DDR due to the rapid growth of their older population. Also, most sub-Saharan African countries have yet to capture a demographic dividend. Some are already experiencing a steady DDR decrease while others have yet to experience it. The sub-Saharan African countries that are most likely to experience a sharp improvement in their DDR are those that are already on a path of swift fertility decline. But prospects of an improved DDR remain unclear for the countries that have a stalled TFR or have yet to experience a steady and swift TFR decline.

A first analysis shows significant discrepancies among the sub-Saharan African regions. Central Africa is furthest behind with a current DDR of 91.6, followed by West Africa (85.0), East Africa (80.9), and Southern Africa (53.6). Between 2020 and 2035, the four regions should experience a decrease in their DDR. However, Central and West Africa would just be in the first stage of the opening of the window of opportunity; East Africa would be in the second stage; and Southern Africa in the final stage (its lowest DDR would be reached soon after, in 2040, at 46.8). In 2050, the DDRs of Central (65.6), West (64.3), and East Africa (58.1) would continue to decrease, while the DDR of Southern Africa would start to grow (48.3). Between 2050 and

2075, in Central, West, and East Africa the DDR would continue its descent, while in Southern Africa it would continue to ascend. Finally, in 2100, Central and West Africa would reach their lowest DDR at 53.3 and 52.3 respectively, and the DDRs in East and Southern Africa would pursue their ascent.

A second analysis shows large discrepancies among countries (see Table 19.3), both within and outside the regions (the country selection has been done on the basis of data availability).

Lastly, a comparison of the DDR evolution in the Asian Tigers with that of most sub-Saharan Africa countries reveals that a swift demographic transition is key not only to increase the probability of benefiting from a demographic dividend but also to determine its magnitude. Mortality rates in Asia decreased at a fast and steady rate starting in the late 1960s. This was followed by a rapid decrease in fertility rates that kicked in within 10–15 years. Fertility decreased so fast that it substantially impacted the age structure in less than a generation, as can be seen from the evolution of the U19 population in South Korea after 1980 (see Table 19.4).

In comparison, Central Africa's DDR (U15-65+) continued to increase from 1960 to 1990 (from 90.35 to 97.66) then started to decrease only slowly, reaching 94.5 in 2010 and 92 in 2020. It is not expected to reach 66 until 2050 and 53 in 2100.

The West Africa region DDR (U15-65+) also continued to increase from 1960 to 1990 (from an average of 80.65 to 95.95) and then started to slowly decrease to reach 90.43 in 2010. However, in countries such as Niger, the dependency ratio was still increasing and reached a peak of 110.1 in 2010. The West Africa DDR is expected to decrease, but rather slowly, to reach 64 in 2050 and 52 in 2100. In East Africa, the U15-65+ DDR increased until 1990 (from 90.3 in 1960 to 97.7), then went back to its 1960 level in 2010 (90.0). It is expected to decrease until 2075 (at 54) and start to slowly increase to reach 57 in 2100. In Southern Africa, the U15-65+ DDR increased from 1960 to 1980 (from 88.6 to 96.2) but then decreased quite rapidly to reach 54.2 in 2010. It is projected to reach 54 in 2020 and 47 in 2035, when it will start to increase to reach 57 in 2100.

**Table 19.3** DDR in selected countries 2015–2055

Country	DDR 2015 Observed	DDR 2035 Estimated	DDR 2055 Estimated
Algeria	53.0	96.0	96.0
Libya	50.0	46.0	43.0
Morocco	52.0	56.0	61.0
Tunisia	46.0	67.0	67.0
Benin	82.6	72.1	61.7
Burkina Faso	87.9	74.0	60.9
Ethiopia	76.8	62.2	51.0
Ghana	67.4	60.3	55.1
Mali	98.0	80.5	62.3
South Africa	52.2	46.6	49.3
China	42.2	54.9	75.8
Japan	69.0	76.9	99.4
South Korea	39.5	64.6	96.6

Source: United Nations (2019)

**Table 19.4** U19 population in South Korea 1960–2010

1960	1970	1980	1990	2000	2005	2010
12,634	16,333	16,943	15,474	13,329	12,083	11,298

Source: United Nations (2019)

From these data, we can formulate several main conclusions: (1) As noted by many researchers (Drummond et al., 2013; Bongaarts, 2017; Guengant, 2017), the demographic transition pattern in sub-Saharan Africa is different from that in other world regions, mostly due to the former's distinctive fertility pattern (a longer time lag between the declines in mortality and fertility and a slower decline – with occasional stalls - in fertility); (2) the four sub-Saharan African regions are not at the same stage of the demographic transition: Southern Africa has completed it; East Africa is in the midst of it; and Central & West Africa are still in the early stages due to a delayed and slow decrease in fertility; (3) The demographic window of opportunity has recently been opened for most Central and West African countries and they need to put in place the policies that would both accelerate the demographic transition and ensure employment of their 15–64 population to benefit from a first demographic dividend in the coming decades; (4) Most East African countries should swiftly complete their demographic transition and start benefiting from a first demographic dividend; (5) Most Southern African countries will soon experience a closing of their demographic window of opportunity as the rapid aging of the population will slow down the decrease of the dependency ratio. They should put in place policies that would ensure the benefit of a second demographic dividend; (6) It appears that the demographic window of opportunity, being dependent on the pace of decrease in both mortality and fertility rate, as well as the span of time between the decrease in mortality and the decrease in fertility, is going to be much smaller in sub-Saharan Africa, and especially in Central and West Africa, all other things equal, than it has been in Asia; and (7) North African countries, having some of the highest youth unemployment rates in the world, need to reduce their EDR and therefore implement effective employment policies.

The evolution of the EDR under the assumption of the current level of labor market absorptive capacity remaining constant during the period 2015–2055, shows that: (i) North African

countries have a huge problem of labor market absorptive capacity; and (ii) several sub-Saharan African countries could be in deep trouble very soon for the very same reason: insufficient absorptive capacity of their labor market. Unless they implement effective employment policies their EDR will likely either continue to ascend or stall, which means that the working population will either support more dependents per worker or, at best, the same number as today in the coming years, and therefore no significant resources would be freed up as a result of the demographic transition.

What Table 19.5 shows is that, under their current level of labor market absorptive capacity, (i) even if a country has drastically improved its DDR, as is the case in Algeria, Morocco, Tunisia, and South Africa, the EDR can be an obstacle to benefiting from a demographic dividend as a result of a lack of effective policies targeting unemployment, and especially unemployment among young adults that have just transitioned from the U15 age category to the 15–64 age group; and (ii) except for Ethiopia, the sub-Saharan Africa countries selected would not be able to reach EDR levels that would enable them to benefit from a first demographic dividend. It is worth noting that China could experience an increase of its EDR, while Japan's would remain more or less at its current level and South Korea's would continue to improve to reach its lowest level in 2055.

Table 19.6 provides a different picture of a demographic dividend prospect for sub-Saharan Africa. Except for Mali (until 2035), each selected sub-Saharan Africa country should experience an improved SDR, which means a decreasing financial dependency burden in the upcoming years. One will notice that for the three selected Asian countries, it is the opposite: their respective SDR is deteriorating due to population aging. Older people maintain a relatively high level of consumption (as compared to the young population) which, depending on the pension scheme and the social security system, will require increasing amounts of transfers from the self-sufficient population.

**Table 19.5** EDR in selected countries 2015–2055

Country	EDR 2015 Observed	EDR 2035 Estimated	EDR 2055 Estimated
Algeria	281.0	223.0	217.0
Libya	250.0	219.0	191.0
Morocco	224.0	319.0	319.0
Tunisia	230.0	256.0	283.0
Benin	153.0	152.0	152.0
Burkina Faso	195.0	239.0	289.0
Ethiopia	119.3	84.0	48.0
Ghana	157.7	156.0	156.0
Mali	193.0	196.0	196.0
Mozambique	140.0	145.0	151.0
South Africa	245.7	250.0	250.0
China	83.0	91.0	99.0
Japan	98.0	96.0	96.0
South Korea	92.6	64.0	35.0

Source: Linyu Li and author

**Table 19.6** SDR in selected countries 2015–2055

Countries	SDR 2015	SDR 2035	SDR 2055
Benin (BEN)	141.6	119.3	97.6
Burkina Faso (BFA)	151.9	102.0	84.8
Ethiopia (ETH)	144.5	84.8	69.8
Ghana (GHA)	123.2	117.4	93.0
Mali (MLI)	80.5	133.1	104.5
Mozambique (MOZ)	104.9	92.3	76.4
South Africa (ZAF)	107.5	67.5	66.4
China (CHN)	93.0	126.8	158.4
Japan (JPN)	88.0	153.2	181.7
Republic of Korea (KOR)	121.7	129.4	166.7

Source: Linyu Li and author

## Conclusions

The evolution of its dependency ratios is a good indicator of a country's chances to benefit from a first demographic dividend. However, as the demographic dividend results from a decrease in the resources allocated to the dependent population, which ultimately is the fraction of the population that is economically supported by the self-sufficient population (the providers or supporters), there is a need to find a dependency ratio that closely estimates this financial burden. The DDR is not the proper indicator, even if there is a good correlation between the DDR and the GDP, and especially the GDP per capita.

The EDR is a better indicator as it places the working population that is unemployed on the side of the dependents. However, this indicator has several weaknesses linked to: (i) the extreme difficulty of identifying the “employed” and “unemployed”, especially in low income countries, where the informal sector is dominant, and where there is a large category of “self-employed” that are not recorded as employed; (ii) the large number of “employed” (especially from the informal sector) that receive a lower salary than the living wage, which means that they are not self-sufficient and should therefore be counted as at least partially dependent; and (iii) the number of “unemployed” that are self-sufficient and should therefore be on the

providers' side. One should note that there is a better correlation between the EDR and the GDP than between the DDR and the GDP.

Lastly, the SDR should be the most accurate dependency ratio to estimate the dependency burden. However, at this point in time, its calculation needs to improve to get more robust results (for example, SDR correlation with the GDP should be at least as good as that of the EDR). Because of our limited capacity to evaluate the dependency burden according to the SDR in many countries, we have been using the EDR to estimate the dependency burden in this chapter.

Based on our current EDR previsions, which will need to be significantly refined by introducing different scenarios based on various hypotheses of labor market absorptive capacity changes, most sub-Saharan African countries have a very low probability to start benefiting from a demographic dividend by 2035. It seems clear that for the sub-Saharan African and North African countries that have already opened wide a demographic window of opportunity, the main bottleneck will be their labor market. Employment rate projections in a few selected countries tend to show that most Central and West African countries that will experience a working age population bulge will not be able to absorb this bulge (as is the case today in North Africa), and unemployment rates will rise as a result. This would not only translate into an increased dependency burden (as estimated through the EDR), and therefore a lower probability of benefiting from a first demographic dividend, but also into increased migration flows toward the more developed countries, especially Europe.

At this stage, it seems that the first stumbling block to accelerating the fertility transition in Central and West Africa is the lack of a strong commitment toward a rapid fertility decline on the part of African leaders, policymakers and stakeholders (May, 2017). This author views this as perhaps the most important challenge that must be addressed in order to capture the first demographic dividend in this sub-region. Thus, today, population policies aiming at decreasing the TFR should be the priority in Central and West Africa. There is a growing consensus among development specialists working in

sub-Saharan Africa – and this could be called the “integrated view” or the creation of an enabling environment – that in addition to the expansion of family planning coverage, sustained fertility declines in SSA will also depend on much lower infant and child mortality levels, substantial improvements in female literacy and education (including at the secondary level), empowerment of women, and greater participation of women in the labor force (May, 2017).

The second stumbling block is the low absorptive capacity of the labor market in many countries, and its discrimination against youth and women. Employment policies aiming at absorbing the bulge in the working-age population, especially youth and women, should be a priority in most sub-Saharan African and North African countries.

The third stumbling block is the low level of salaries and benefits (and especially health benefits), especially in the informal sector, and again especially for the youth and women. Improvements in formalization of employment, the minimum wage, and social protection policies (targeting the “working poor”) aiming at increasing the self-sufficiency of all working people, should become the new priority when countries have been able to lower their fertility and start to employ the “baby boomers”.

However, these are only priorities, which means that in order to benefit from a demographic dividend, countries will have to make the most cost-effective use of: (i) the financial resources that have been freed up by the decline of the number of dependents per provider; and (ii) the additional human resources resulting from the demographic transition.

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## References

- Bloom, D., & Canning, D. (2001). Cumulative causality, economic growth, and the demographic transition. In N. Birdsall, A. C. Kelley, & S. W. Sinding (Eds.), *Population matters: Demographic change, economic growth, and poverty in the developing world* (pp. 165–197). Oxford University Press.
- Bloom, D., Canning, D., & Sevilla, J. (2003). *The demographic dividend: A new perspective on the economic consequences of population change*. Rand Corporation.

- Bongaarts, J. (2009). *Human population growth and the demographic transition*. The Population Council.
- Bongaarts, J. (2017). Africa's unique fertility transition. In J. B. Casterline & J. Bongaarts (Eds.), *Fertility transition in sub-Saharan Africa. Population and development review*, 43(Suppl), 39–58.
- Cunningham, W. (2007). *Minimum wages and social policies. Lessons from developing countries*. World Bank Group.
- Cutler, J., Poterba, M., et al. (1990). *An aging society: Opportunity or challenge?* MIT, Harvard University.
- Drummond, P., Thakoor, V., & Yu, S. (2013). *Africa rising: Harnessing the demographic dividend*. International Monetary Fund.
- Eberstadt, N. (2017). Manpower, education, skills and jobs in sub-Saharan Africa: Past trends and future outlook. In H. Groth & J. F. May (Eds.), *Africa's population: In search of a demographic dividend* (pp. 225–250). Springer.
- Groth, H., & May, J. F. (Eds.). (2017). *Africa's population: In search of a demographic dividend*. Springer.
- Groth, H., May, J. F., & Turbat, V. (2019). Policies needed to capture a demographic dividend in sub-Saharan Africa. *Canadian Studies in Population*, 46(1), 61–72.
- Guengant, J. P. (2017). Africa's population: History, current status, and projections. In H. Groth & J. F. May (Eds.), *Africa's population: In search of a demographic dividend* (pp. 11–31). Springer.
- ILO. (2013). *Employment and social protection in the new demographic context*. Report IV, International Labour Conference, 102nd Session. International Labour Organization.
- ILO. (2016). Global youth unemployment is on the rise again. In *World employment and social outlook 2016: Trends for youth*. International Labour Organization.
- Kipsha, E., & Msigwa, R. E. (2013). Determinants of youth unemployment in developing countries: Evidences from Tanzania. *Journal of Economic and Sustainable Development*, 4(14), 67–76.
- Lee, R. D., & Mason, A. (2006). What is the demographic dividend? *Finance & Development*, 43(3), 16–17.
- Lee, M., Christianson, H., & Bietsch, K. (2016). Global employment and the sustainable development goals. *Population Bulletin*, 71(2).
- Lesthaeghe, R. (2010). The unfolding story of the second demographic transition. *Population and Development Review*, 36(2), 211–251.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- May, J. F. (2017). The politics of family planning policies and programs in sub-Saharan Africa. *Population and Development Review*, 43(Suppl), 308–329.
- May, J. F., & Guengant, J. P. (2020). *Demography and economic emergence of sub-Saharan Africa* (Series Pocket Book Academy, Vol. 134-EN). Académie royale de Belgique.
- May, J. F., & Rotenberg, S. (2020). A call for better integrated policies to accelerate the fertility decline in sub-Saharan Africa. *Studies in Family Planning*, 52(2), 193–204.
- May, J. F., & Turbat, V. (2017). The demographic dividend in sub-Saharan Africa: Two issues that need more attention. *Journal of Demographic Economics*, 83(1), 77–84.
- Parant, A., & Hommel, T. (2019). La fenêtre démographique en Afrique de l'Ouest : une ouverture différée. *Futuribles International*, 220, 1–18.
- Patierno, K., Gaith, S., & Madsen, E. L. (2019). *Which policies promote a demographic dividend? An evidence review*. Population Reference Bureau.
- Pettinger, T. (2019). *Policies for economic development*. Economics Help; see <https://www.economicshelp.org/blog/4998/development/policies-for-economic-development/>. Accessed 27 Mar 2021.
- Population Reference Bureau. (2020). *2020 world population data sheet*. Population Reference Bureau.
- Rostow, W. W. (1960). *The stages of economic growth: A non-communist manifesto*. Cambridge University Press.
- Terrell, K., & Almeida, R. K. (2008). *Minimum wages in developing countries: Helping or hurting workers?* (Employment policy primer, No. 10). World Bank Group.
- Turbat, V. (2017). The demographic dividend: A potential surplus generated by a demographic transition. In H. Groth & J. F. May (Eds.), *Africa's population: In search of a demographic dividend* (pp. 181–195). Springer.
- Turra, C., & Queiroz, B. (2005). *Before it's too late: Demographic transition, labour supply, and social security problems in Brazil*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2013). *National transfer accounts manual: Measuring and analyzing the generational economy*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2019). *World population prospects. The 2019 revision*. United Nations, Department of Economic and Social Affairs, Population Division.
- World Bank. (2007). *Capturing the demographic bonus in Ethiopia: Gender, development, and demographic actions*. World Bank Group.
- World Bank. (2014). *Sahel women empowerment and demographic dividend project phase I*. World Bank Group.
- World Bank. (2015). *Africa's demographic transition: Dividend or disaster?* (Africa development forum). World Bank Group.
- World Bank/International Monetary Fund. (2016). *Global monitoring report 2015/2016: Development goals in an era of demographic change*. World Bank Group.



# Linkages Between Family Planning and HIV/AIDS Programs

# 20

Rachel Sullivan Robinson

## Introduction

Heterosexual sex causes almost all pregnancies and HIV transmission in sub-Saharan Africa, and since the 1980s donors have poured resources into programs to prevent both pregnancy and HIV on the continent. As a result, synergies between these programs seem likely. With a focus on Malawi, Nigeria, and Senegal, this chapter tells the stories of these synergies, which help explain these countries' successes in combatting HIV. But the stories also reveal the numerous instances when turf and other structural barriers have prevented synergies from emerging, arguably to the detriment of African populations' health.

Much of this chapter draws from my book, *Intimate Interventions in Global Health: Family Planning and HIV Prevention in Sub-Saharan Africa* (Robinson, 2017), with supplemental material on integration of family planning and HIV programming based on fieldwork conducted at the same time as that for the book, in 2009–10.<sup>1</sup> The book, and chapter, focus in

particular on the “early” years of the response to HIV, prior to the widespread availability of treatment in the 2000s. The three case study countries—Malawi, Nigeria, and Senegal—represent different combinations of experiences with family planning and HIV, and thus capture some of the diversity of African countries overall. All three countries had high fertility in the 1980s and although fertility has declined in the past 40 years, it remains above replacement level, and many women still have unmet need for contraception (see Table 20.1). The three countries have had different experiences with the AIDS epidemic, with adult (aged 15–49) prevalence rates never exceeding 1% in Senegal, a slightly worse epidemic in Nigeria, and a severe epidemic in Malawi. The three countries have also exhibited different responses to these realities, as described in the specific sections of the chapter that follow.

The logic underpinning connections between family planning and HIV prevention programs is quite straightforward: family planning programs preceded the HIV epidemic, gave organizations and governments practice addressing sensitive topics related to sex, and were funded largely by the same international organizations. Specifically,

<sup>1</sup> I conducted in-depth interviews with more than 140 people working for federal ministries, donor organizations, and national and local nongovernmental organizations in each of the three case study countries, almost all of whom

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were nationals of their given country. In addition, I interviewed six experts from the population field. Interviews are cited with a letter indicating the source (E = expert, M = Malawi, N = Nigeria, S = Senegal), a number, and in the case of country interviews, the type of organization the person worked for.

**Table 20.1** Demographic characteristics of case study countries, 2015–2018

	Malawi	Nigeria	Senegal
Total fertility rate	4.4	5.3	4.6
Modern contraceptive prevalence rate, married women 15–49 (%)	59.6	16.6	27.8
Unmet need for family planning, married women 15–49 (%)	18.7	18.9	21.9
HIV prevalence, adults 15–49 (%)	8.8	1.4	0.5

Sources: Demographic and Health Surveys for Malawi (2015–16), Nigeria (2018), and Senegal (2017), with the exception of Nigeria’s HIV prevalence, which is from the 2018 Nigeria HIV/AIDS Indicator and Impact Survey

family planning and HIV programs have relied on similar resources, discourses, and strategies. By resources I mean funding, organizations, and human capital. Discourses refer to interpretations of the causes of population growth and the spread of HIV, which in turn have informed the solutions designed to reduce fertility and prevent HIV. And strategies are the specific elements of these solutions, such as condoms, social marketing, entertainment-education (or “edutainment”), community-based distribution, and vertical programs. Despite the numerous connections between family planning and HIV programs, discursive and strategic barriers have weakened or prevented links, as well as hampered integration efforts, discussed at the end of the chapter.

This chapter is part of a book focused on population policies. By the late 1990s, two thirds of sub-Saharan African countries had adopted population policies designed to lower fertility and slow population growth (Robinson, 2015). Countries adopted these policies for an intertwined set of reasons related to their own internal politics combined with pressure from external donors. For example, in Nigeria, a charismatic Minister of Health championed the 1988 population policy as a means to improve maternal and child health while the policy simultaneously permitted the military dictatorship to curry favor with donors, particularly the World Bank, and provided an opportunity to scapegoat population growth for economic woes (Robinson, 2012).

Fewer countries, however, ever adopted anything called an HIV/AIDS “policy”. Table 20.2 shows the countries that adopted national HIV/AIDS policies and the year in which they did so. Only 17 countries adopted an HIV/AIDS policy, compared to 32 countries with a population policy. All but three of the countries that

adopted HIV policies also adopted population policies, and they did so on average slightly earlier than countries that did not adopt HIV policies. Of course, across a broader set of countries, Ministries of Health and National AIDS Commissions certainly promulgated numerous frameworks, strategic plans, and other similarly titled documents in response to HIV. But these documents lack the symbolism of population policies. In some regards, the AIDS “policy” never became a political or cultural document in the same way as national population policies. One possible interpretation for this difference is that there was no debate about whether HIV should be prevented; with HIV the debates have always circulated about how to do so (e.g., abstinence versus safe sex). Furthermore, donors did not demand AIDS policies the way they did population policies; instead, short- and medium-term plans as well as “strategic” plans for fighting HIV/AIDS became the *de rigueur* documents (Stover & Johnston, 1999). In contrast, most countries that adopted population policies experienced pointed debates about whether it was necessary to curb rapid population growth and appropriate to limit fertility. These policies had links to later HIV outcomes. For example, countries that adopted a population policy provided a greater percentage of their population with antiretroviral therapy by the late 2000s (Robinson, 2011). This relationship may be the result of governmental willingness to engage sensitive topics like family planning and HIV, good relationships with donors, or even government effectiveness (i.e., the ability to pass policies and implement programs).

The next section of the chapter examines family planning and HIV programs at both the global level, as well as across sub-Saharan African



**Table 20.2** Dates of adoption of initial AIDS policies in sub-Saharan African countries

Year of adoption	Country
1993	Botswana
1997	Nigeria
1998	Ethiopia Swaziland
1999	Democratic Republic of the Congo Zimbabwe
2000	Lesotho
2001	Tanzania
2002	Sierra Leone
2003	Malawi São Tomé and Príncipe
2004	Ghana Mali Sudan
2005	Rwanda Zambia
2007	Namibia

Source: Searches through donor sources (e.g., POLICY Project, UNAIDS country reports) as well as WorldCat and Google for the terms “HIV” and “policy” in French, English, and Portuguese. The table does not include documents called by other names, such as short- and medium-term plans, or strategic plans

countries, first describing the connections, and then the barriers to synergy. It is followed by separate sections on the experiences of Malawi, Nigeria, and Senegal. A final section prior to the conclusion addresses the benefits and particularly the challenges of integrating family planning and HIV programs, again with a focus on the three case study countries.

### **Global and Cross-National Links Between Family Planning and HIV Programs**

There are a number of links between family planning and HIV programs evident at the global level, as well as when looking at all sub-Saharan African countries cross-nationally. These links connect the population and HIV fields at global, national, and local levels. A field consists of the set of individual and collective actors who interact with one another with a shared understanding of the purposes, relationships within, and rules of the field (Fligstein & McAdam, 2011). Thus, the population field in a given country includes: contraceptive users; nongovernmental organizations

(NGOs) that provide services and advocate for reproductive rights; the ministries of health, finance, women, youth, etc.; legislators and executives; international organizations that fund and promote family planning; religious organizations; and so forth. The HIV/AIDS field includes a similar set of actors, oriented around HIV prevention and treatment, and overlaps at many points with the population field.

Three points of connection between family planning and HIV prevention programs at global and national levels are resources, discourses, and strategies. Although it generated new resources, HIV programs took funding away from family planning (Lordan et al., 2011; Shiffman, 2008; Shiffman et al., 2009). People who had first worked in the family planning field contributed to HIV efforts, such as John Bongaarts (Population Council), Peter Lamptey (Family Health International), and Malcolm Potts (Family Health International). Many family planning organizations came to include HIV prevention and even treatment in their activities. Discursive similarities abound between interpretations of the causes and consequences of high fertility and HIV: that they are emergencies, create

development problems, stem from individual failures rather than structural forces, have rights-based solutions, and produce insecurity. Family planning strategies that the HIV field borrowed include social marketing, entertainment-education, community-based distribution schemes, and vertical programs. The following two sections discuss how resources, discourses, and strategies helped form synergies between family planning and HIV programs globally and cross-nationally, but at times also inhibited those synergies.

### Positive Links

The funding patterns that developed from population programs created much of the architecture for financing HIV programs, particularly early on. For example, in the 1980s, the U.S. Agency for International Development (USAID) prioritized population programs in some countries but not others. In the 2000s, these family planning priority countries received significantly more grants for HIV from the Global Fund to Fight HIV, Tuberculosis and Malaria (USD 57 million as compared to USD 24 million between 2002 and 2010), even after taking into account the extent of the HIV epidemic (Robinson, 2017). This path dependence in a country, despite being between two completely different agencies, suggests family planning programs helped countries build a track record with international donors, as well as the financial infrastructure to receive large grants.

Funding patterns replicated at other levels. As with family planning, U.S.-funded HIV programs have preferred to use large U.S. NGOs to implement programs within countries, largely by channeling money yet further to local NGOs (Merson et al., 2008). Early in the HIV epidemic, donor organizations unable, or unwilling to try, to convince African governments to accept funds for HIV activities instead directed the funds to family planning organizations.<sup>2</sup> Specific family planning organizations also embraced HIV in ways that

directly reflected the location and approach of their work. By 1991, the International Planned Parenthood Federation, with affiliate organizations in many African countries, had suggested that affiliates add AIDS education to their family planning activities (Finger, 1991). In 1988, the Ford Foundation gave 13 AIDS grants to Brazil, Haiti, Thailand, Senegal, and Mexico; all but Haiti were the location of field offices with population-related portfolios (Brier, 2009). Family Health International, now FHI360, had HIV pilot programs in Cameroon, Ghana, and Mali by the very early date of 1986 (FHI 360, 2012), all countries where it already had family planning programs.

Family Health International explicitly drew from family planning expertise as they began to address HIV. They justified their suitability for an early USAID AIDS-related contract on that expertise as well as the behavior change and technology distribution necessary for both family planning and HIV programs (Timbs, 2011). In a 1990 handbook on AIDS prevention, Family Health International noted that: *“Family planning managers have already demonstrated their willingness to take on one highly controversial issue, namely family planning in Africa. With financial and technical assistance, the same people can apply their experience to AIDS prevention, an even more controversial area, while ensuring that family planning programs fulfill their important mission of delivering family planning services”* (Williamson & Boohene, 1990: 208). The organization even used a family planning manual as part of its HIV training, ultimately updating the manual with relevant HIV examples (Zimmerman et al., 2002).

The social marketing of condoms, developed first as a strategy for family planning, immediately became useful in addressing AIDS (Sweat et al., 2012). Major NGOs that socially market condoms for HIV all started as family planning organizations, including Population Services International, Marie Stopes International, and DKT International (Pfeiffer, 2004). For example, Population Services International was founded in 1970 well before the AIDS epidemic, has local partner organizations in many countries (see discussion of Nigeria below), and so had an AIDS

<sup>2</sup> E4

project very early on, in 1988 (Population Services International, n.d.). Family Health International noted that “*The use of social marketing to promote and deliver condoms for the prevention of HIV and other [sexually transmitted infections] has not differed fundamentally in technique from the family planning efforts, especially in its basic, mass marketing approach*” (Family Health International, 1997: 90).

Local family planning organizations have played an important role in countries’ responses to HIV, particularly in the early days when resources were lacking and stigma was high. Early on, scholars and practitioners noted local family planning organizations’ familiarity with communities and experience with facilitating behavior change as an asset in addressing HIV (Greeley, 1988; Green, 1994; Sinding & Seims, 2002; Williamson & Boohene, 1990). Cross-national statistical analysis demonstrates that countries with an affiliate of the International Planned Parenthood Federation on the ground at the time of the emergence of HIV experienced greater declines in HIV prevalence in the 2000s than did countries without such an organization (Robinson, 2011, 2017). While it is impossible to identify whether this link is causal, the experiences of local family planning organizations in Malawi, Nigeria, and Senegal described below suggests that these organizations were able to leverage their community connections, expertise in communication, and capacity for service provision to address HIV when it emerged. As mentioned above, these organizations also served as a landing pad for donor funds.

Overall, then, resources and strategies readily transferred between family planning and HIV programs both globally as well as across sub-Saharan African countries.

### Factors Inhibiting Links

There were also a number of factors that kept the population and HIV fields apart globally as well as within individual countries. In particular, the population field, already all too familiar with

ideological battles related to contraception and abortion, was hesitant to embrace a stigmatized issue like HIV. As one population expert interviewed for *Intimate Interventions* put it, “(t)he last thing family planners wanted in the late 1980s/early 1990s was to get involved in extramarital, premarital, same-sex, or transactional sex,”<sup>3</sup> precisely the types of sex most associated with the spread of HIV (Robinson, 2017). At the same time, the HIV field had its own politics that made it wary of the population field. The “family” element of family planning, a discursive tactic adopted by the population field from the days of Margaret Sanger and Planned Parenthood, seemed alien to much of the HIV field, which had grown in the West out of efforts to protect primarily gay men and had embraced more liberal views of sex and sexuality.

Even though family planning resources nourished the early response to HIV, resources were also a flash point that kept the population and HIV fields apart. As one population expert put it, “Neither community has been able to share the bounty when they have it . . . The history of family planning and HIV is a bizarre ping pong game of who or what is most stigmatized. They are two communities that should be natural allies by virtue of both dealing with people having sex, but have more frequently been competitors”<sup>4</sup> (Robinson, 2017). Resentment and suspicion have abounded, particularly after HIV began to win the competition for resources (Blanc & Tsui, 2005), but even before. Family planners feared that an association with a highly stigmatized disease would threaten achievements related to family planning and abortion, and make their work in conservative contexts even harder. Sophia Gruskin has noted that “*HIV shed light on many thorny issues around sexual behavior and sexuality that the reproductive health community had been more than happy to keep off the table in order to engage more easily with governments and other conservative forces*” (Gruskin, 2009: 126). Even condoms were a

<sup>3</sup> E5

<sup>4</sup> E3

point of division, as the HIV field's emphasis on free condom distribution threatened the family planning field's social marketing efforts.<sup>5</sup> For similar reasons, the HIV field also hesitated to engage with family planning as it was also stigmatized and complicated interactions with policymakers. Donors strategizing how to respond to HIV were familiar with African governments' hesitancy about family planning, and so worked to separate HIV.<sup>6</sup>

Many in the HIV field also felt that "family" planning simultaneously de-emphasized male reproductive decision-making and the needs of adolescents.<sup>7</sup> Other more prosaic differences existed between preventing pregnancy and preventing HIV. Indeed, outside of sub-Saharan Africa, the HIV epidemic was concentrated among men who have sex with men, not the women targeted by family planning programs.<sup>8</sup> The initial response to HIV also drew heavily from public health, which differed from the population field's approach.<sup>9</sup> Later, the Millennium Development Goals, announced in 2000, both exemplified and reified these divisions with separate goals for reproductive health (Goal 5) and HIV/AIDS (Goal 6).<sup>10</sup>

The dynamics between the two fields have also played out within specific agencies. In the mid-to-late 1980s, USAID's family planning bureau was newly adapting to life under the Mexico City Policy and did not want another controversial issue like AIDS (Behrman, 2004). In the 1990s, USAID lobbied against Congressional earmarks for AIDS, perhaps to protect turf designated for family planning (Piot, 2012), or simply to avoid more controversy (Gellman, 2000). Those within USAID also felt that the agency should maintain its focus on problems with known solutions—like population growth and infant and child mortality—that affected more people than AIDS, which

had no vaccine and no cure, and no reliable treatment until 1996 (Gellman, 2000; Piot, 2012).

Some of the same patterns emerged at the United Nations Population Fund, UNFPA. At first, UNFPA kept AIDS at "arm's length,"<sup>11</sup> perhaps seeing it as competition to their core family planning mission,<sup>12</sup> and at one point even said that condoms designated for family planning could not be used for HIV prevention.<sup>13</sup> Nonetheless, UNFPA was one of the original six co-sponsors of the new UN agency created to address AIDS in 1996, UNAIDS, and a UNFPA Division Director interviewed for the Executive Director position at UNAIDS. The ultimate selection of Peter Piot, an infectious disease expert, for that role led to a sense within UNFPA that UNAIDS was not supportive of family planning and reproductive health, thus maintaining divides between the two fields.<sup>14</sup>

Those connections between the family planning and HIV fields that did exist were not necessarily positive as they allowed the replication of (perceived) flaws. For example, USAID's initial response to HIV rested strongly on the promotion of condoms. Some who have criticized that approach interpret it as the result of USAID's prior work in family planning, or its tendency to channel AIDS funding through family planning organizations (Green, 2011; Timberg & Halperin, 2012). More broadly, discursive factors may have also posed barriers for the HIV field drawing from the family planning field. Specifically, in order to reduce controversy, the field has long referred to contraception as "family planning," and many programs focused on sex only within marriage.<sup>15</sup> While the advantages of doing so may well have outweighed the costs, they left the HIV field with fewer handholds given that it had to deal much more directly with sex, and frequently outside of marriage.

<sup>5</sup> E3

<sup>6</sup> E1

<sup>7</sup> E3

<sup>8</sup> E3

<sup>9</sup> E2

<sup>10</sup> E3

<sup>11</sup> E4

<sup>12</sup> E1

<sup>13</sup> E1; UNAIDS apparently also said that AIDS condoms could not be used for family planning.

<sup>14</sup> E3

<sup>15</sup> E5

At the country level, some of these same dynamics played out, as the three country cases that follow also show. Admittedly, family planning programs in sub-Saharan Africa generally did not promote condoms to prevent pregnancy (Zaba et al., 1998), instead treating them as protection against sexually transmitted infections. But divisions between the two fields still kept those in HIV away from family planning. For example, Ministries of Health initially treated HIV as a sexually transmitted infection, and thus housed it within their sexually transmitted infection division, rather than the division that addressed maternal health and family planning. This separation particularly occurred for programs targeting sex workers. At the urging of donors, all countries created national AIDS commissions, which were above the Ministry of Health, thus further distancing HIV from family planning. Those working in family planning worried that incorporating HIV would bring stigma that would complicate their work, while those working in HIV felt those in family planning would be unwilling or unable to support sexually marginalized populations (Gruskin, 2009).

Negative discursive links also existed in many African countries. A common conspiracy theory was that the West, and specifically Americans, developed AIDS as a form of population control and spread it through condoms distributed by donor programs (Trinitapoli & Weinreb, 2012). As first responders to the HIV crisis, family planning organizations made these claims very believable.

A number of discursive factors in particular, but also factors related to resources and strategy, thus kept the family planning and HIV fields apart both globally and within countries. On balance, these divisions dampened the synergies that were possible between the two fields, in some instances particularly severely. The case studies that follow spell out the related experiences in three different African countries.

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## Malawi

In Malawi, a largely negative early history of family planning hampered the first HIV

prevention efforts. Malawi's long-time (from independence in 1964 until 1994) personalist ruler, Hastings Kamuzu Banda, effectively banned family planning from the country until the 1980s, and negatively impacted both family planning and HIV prevention efforts. To conservative Banda, contraception was Western and a threat. As a result, official government family planning programs began only in limited fashion in the mid-1980s. As local demand for family planning was quite minimal, Malawians questioned the motives of the government and donors when they promoted family planning: why were these organizations trying to limit the number of Malawians?

The poor reception of the family planning program and its bad luck of ramping up just as AIDS deaths became visible made family planning cast a "long shadow" over HIV prevention (Kaler, 2004). When these very same organizations that had implemented family planning programs took on HIV, people's suspicions readily transferred from family planning to HIV. Nonetheless, Banja La Mtsogolo, the family planning NGO founded around the time the HIV epidemic began, ultimately became a major HIV service provider, and the response to HIV ultimately drew from community-based distribution and social marketing programs for family planning promotion, many funded by USAID.

Banja La Mtsogolo, or "Family of the Future" in Chichewa, was founded in 1987, contemporaneously to the emergence of the HIV epidemic in Malawi and a full 5 years before the first AIDS organizations in 1992 (USAID, 2004). The first family planning organization in the country, Banja La Mtsogolo ultimately socially marketed condoms, provided free HIV testing and counselling, sent reproductive health assistants to remote and other hard-to-reach areas, supplied HIV information to family planning clients, and provided medical male circumcision for HIV prevention.

Family planning also linked to HIV prevention through USAID's many programs in Malawi, which prioritized integration with family planning programming from the very beginning of the HIV epidemic through social marketing and other programming. That USAID was the

country's largest supplier of both contraception and condoms perhaps facilitated this link (Atkinson & Nkera, 1993). USAID's social marketing of Protector brand condoms began in 1991, primarily for family planning. But USAID subtly incorporated information about HIV prevention into communications about the condoms, thus integrating the two campaigns while simultaneously avoiding controversy (Tipping, 1993). When Population Services International took over the USAID social marketing campaign, renaming Protector to Chishango ("shield" in Chichewa), its advertising also integrated family planning and HIV prevention (Thompson, 1995).

The USAID-funded STAFH project ran from 1992 to 1998 and explicitly integrated family planning and HIV prevention. For example, the project supported the creation of *Tinkanena*, an award-winning Chichewa radio soap opera promoting family planning as well as prevention of sexually transmitted infections and HIV that ran through the 1990s (John Snow, 1998). The STAFH project's grants to NGOs also focused on supporting organizations to provide both family planning and HIV services (John Snow, 1998).

Despite some positive links between family planning and HIV prevention, the context in Malawi was not conducive to HIV interventions strongly benefitting from family planning programs for a number of reasons. First, family planning's history in Malawi was genuinely difficult. The term "family planning" was even too controversial; instead, "child spacing" was preferred. This discursive leap made it difficult to link pregnancy prevention to HIV prevention. Because of the discourse and other elements of the "*long shadow cast by population control*" (Kaler, 2004: 106), many Malawians believed the conspiracy theory that AIDS was an American plot to reduce the size of Malawi's population (Lwanda, 2004: 35), rumors that persisted through the early 2000s (Wilson, 2012).

Second, as in most places in sub-Saharan Africa, condoms were not a core part of the family planning repertoire, but instead a form of back-up contraception, for non-marital relationships, or for youth (Thompson, 1995).

Third, community-based distribution agents were uncomfortable talking about HIV, and confused about whether Chishango condoms were for family planning or HIV (Thompson, 1995). Individuals interacting with distribution agents also desired some separation between HIV and family planning, because it was too much information at once, because they doubted the same agent could be expert in both topics, or because they linked HIV to promiscuity and family planning to family (Thompson, 1995). Fourth, Malawi's Ministry of Health has long bureaucratically and physically separated the sexually transmitted infection division from the family planning division, challenging integration. Those developing AIDS programming knew the history of family planning in Malawi, and so did not rush to merge the two together.

In Malawi, then, the history of family planning proved a barrier to early efforts to respond to HIV, but the resources and strategies of global as well as local organizations helped overcome some of these barriers.

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## Nigeria

Nigeria had relatively robust family planning efforts in the 1980s and early 1990s due to the leadership of Minister of Health Olikoye Ransome-Kuti and family planning NGOs that overcame obstacles caused by military rule and donor decertification. As in Malawi, these NGOs served as a link between family planning and HIV efforts, as did other organizations, including the Ford Foundation.

As in Malawi, USAID's provision of condoms through the family planning program facilitated the initial response to HIV in crucial ways. As a USAID report put it in 1995, "*Without inflow and distribution of condoms through the USAID Family Planning program, Nigeria's war to stop the epidemic of HIV/AIDS will falter*" (U.S. Agency for International Development, 1995: 2). The Ford Foundation had an office in Lagos starting from 1960 that provided funding for family planning. It then funded HIV prevention very early on, specifically because of one staff member

(Brier, 2009). As a result, the Ford Foundation funded the earliest AIDS organizations in Nigeria, including STOPAIDS and the Nigerian chapter of the Society for Women and AIDS in Africa (Brier, 2009).

Nigeria's three core family planning NGOs—the Planned Parenthood Federation of Nigeria, the Association for Reproductive and Family Health, and the Society for Family Health—all initially worked in family planning but became important to HIV prevention and treatment. The Society for Family Health, founded in 1985, socially marketed condoms and began HIV work the earliest among the three (Boss & Robinson, 1994). It socially marketed Gold Circle condoms for both family planning and HIV prevention, first in three states in 1990 and then nationally by 1992 (Boss & Robinson, 1994).

Human capital also linked family planning and HIV. Professor Ransome-Kuti, the Minister of Health and a key actor in family planning efforts, including Nigeria's 1988 population policy and the creation of the Society for Family Health (Odutolu et al., 2006), also tackled HIV prevention. As Minister of Health when HIV emerged, he developed programming to respond to HIV and ultimately served as Chairman of the National Committee on AIDS (Falobi, 1999; Fatusi & Jimoh, 2006; Iliffe, 2006; Oluwaseun, 2003). Perhaps most importantly, he publicly proclaimed that his brother the Afrobeat musician Fela had died of AIDS, convincing many Nigerians that AIDS was real and dangerous.

As in Malawi, Nigeria has its own “long shadow” of population control, primarily in the Muslim north of the country, where many have questioned the motivation behind Western-funded family planning programs (Renne, 1996). Nigerians interpreted the programs as efforts to limit the number of Muslims, to prevent Nigeria's rise as a super-power (Faruq, 1989), or as ways to dump expired contraceptives (Orisasona et al., 1996). Also, as in Malawi, rumors have circulated that the CIA created HIV to reduce population growth, spreading it through condoms (Smith, 2014).

As in Malawi and Senegal, the reproductive health division of the Ministry of Health in

Nigeria is separate and physically distant from the division that focuses on sexually transmitted infections. Local interpretations of HIV as a disease, rather than a reproductive health issue, may have driven these separations, but so too may have donors as their vertical programs led to individual buildings for “donor diseases” (tuberculosis, AIDS, malaria), rather than integration into broader Ministry of Health activities (Robinson, 2017).

Concerns similar to those in Malawi arose as well about integration of family planning and HIV prevention through condoms. A 1988 USAID study referenced consumer confusion and stigma: *“The issue arises from the new focus on the condom as a prophylactic against AIDS, and the question is whether this use will tarnish the image of the condom as a family planning method that is appropriate within a marital relationship”* (Population Technical Assistance Project, 1988: iv).

Overall, Nigeria's experience demonstrates how resources and strategies associated with family planning were put to the service of HIV programs, but also how discursive factors and structural barriers inhibited broader synergies from forming.

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## Senegal

Globally, Senegal is known as an HIV “success” story, with HIV prevalence consistently below 1% and strong government and civil society participation in the fight against AIDS. Almost universal male circumcision, legal sex work, robust civil society, and an outward-oriented perspective have facilitated this outcome. A strong family planning NGO predated the HIV epidemic, and promoting family planning likely allowed the government and NGOs to work with religious leaders in a way that perhaps helped similar conversations emerge about HIV. As in other countries, USAID's involvement helped with continuity between family planning and HIV. These connections explain part of Senegal's successful response to HIV, as the seminal 1999 UNAIDS report giving Senegal that label noted:

*“Reproductive health and child health are well established priorities . . . family planning services are expanding: modern contraceptive use doubled in the five years to 1997”* (Pisani, 1999: 7–8).

As in Malawi and Nigeria, USAID served as a locus of linkages between family planning and HIV prevention. Family planning grants covered most of USAID’s early HIV work in Senegal. The Senegal Family Health and Population Project funded HIV information education and communication activities, condom distribution through the National AIDS Program, and HIV training for medical personnel (U.S. Agency for International Development, 1992). Key players in the response to HIV, Drs. Soulemayne Mboup and Ibrahima Ndoye (both globally prominent HIV scholars and the latter the head of the National AIDS Commission), facilitated these transfers. They argued to USAID that knowledge of sexually transmitted infections among women was necessary to effective family planning programs, and so USAID helped increase laboratory capacity, which ultimately supported the response to HIV (Poleykett, 2012). Early on, Dr. Ndoye also recommended integration of information, education, and communication about HIV, sexually transmitted infections, and family planning because *all* sexually active people were in need of the information (Devres, 1991).

When launching a major HIV project (AIDSCAP) in 1992, USAID limited its work to a subset of the six regions of its prior family planning project because of the *“possibility of liaisons with the Mission’s proposed family planning project”* (U.S. Agency for International Development, 1992: 16). AIDSCAP also used the same strategies as earlier family planning programs, such as study tours for bureaucrats to countries with noteworthy HIV programs and computer simulations that highlighted the economic, social, and other impacts of AIDS to policymakers and politicians.

As in Malawi and Nigeria, USAID’s social marketing programs linked family planning and HIV. USAID’s Family Planning and Child Survival project served as the umbrella for the social marketing of Protec condoms beginning in 1995

(SOMARC/The Futures Group International, 1997). Program planners intended Protec condoms to be used for both family planning and HIV prevention, so similar to Malawi, advertising took advantage of condoms’ family planning capacity to try to overcome HIV stigma (Stephens & Ba, 1996). A review published a year after the campaign began concluded that *“Now that [the social marketing program] has been successful in demystifying and establishing the credibility of the condom by focusing primarily on child spacing, the groundwork has been laid to target STD/HIV prevention”* (Stephens & Ba, 1996: 23).

Linkages between family planning and HIV occurred through other organizations. Family Health International began family planning programs in Senegal in the early 1980s, and then HIV programs in the late 1980s (Family Health International, 2002). The World Bank, deeply involved in the country’s 1988 population policy, began funding HIV programs in 1991 through a loan to Senegal’s Population and Health program (U.S. Agency for International Development, 1999). The Ford Foundation had a field office in Senegal prior to the HIV epidemic that funded family planning, and in 1988, very early in the HIV epidemic, gave the country one of its initial AIDS grants (Brier, 2009).

Local family planning NGOs also built HIV activities into their portfolios. ASBEF, Senegal’s affiliate of the International Planned Parenthood Federation, was founded more than ten years before the first AIDS case was discovered in the country, and incorporated HIV prevention activities as early as 1990. ASBEF in particular worked to develop communication channels with Islamic leaders about population, which may have helped lay the groundwork for similar communication about HIV. Over time, ASBEF’s HIV-related activities expanded to include large-scale condom distribution through its clinics located in half of Senegal’s regions, HIV testing, and prevention of mother-to-child transmission of HIV.

As in Malawi and Nigeria, some of the same factors complicated links between family planning and HIV programs. After the first cases



of HIV were diagnosed in 1986, the sexually transmitted infection division of the Ministry of Health took it on, not the maternal and child health division. As in other places, these two divisions were physically separated, at opposite ends of Avenue Blaise Diagne in Dakar. In addition, donors had set up the national family planning program as a distinct, vertical program separate from the maternal and child health division. Then, when the national AIDS program was ultimately created, both it and the national family planning program had the mandate to respond to AIDS, which created bureaucratic confusion and a lack of collaboration through the 1990s (Devres, 1991; Wilson, 1998). As a result, screening for sexually transmitted infections, including HIV, focused primarily on sex workers, limiting the general female population's access. A 1995 review found that HIV counselling sessions were "practically non-existent" as a part of family planning service delivery (Ministry of Health and Social Action, National Family Planning Program of Senegal, & Population Council, 1995: 1), perhaps because clinic staff did not feel comfortable discussing sexually transmitted infections with family planning clients (Hardee et al., 1998).

In the end, family planning programs in Senegal provided many of the same benefits to HIV programs as in Malawi and Nigeria. Although structural factors challenged synergies, negative discursive links were not as strong as in the other two countries, perhaps because of Senegal's highly positive relationships with donors and other external actors.

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## Integration

Efforts to integrate family planning and HIV services have waxed and waned over the years. There are a number of reasons to try to integrate family planning and HIV services. Two stand out in particular. First, women access the health sector most frequently because of pregnancy and motherhood, so antenatal visits and visits for child health needs provide an opportunity to reach them with HIV services (testing in particular, but also information on prevention and if

necessary, treatment), increase efficiency, and reduce costs (Lush et al., 2001; Stover et al., 2006; Warren et al., 2017). Second, development assistance for health for HIV/AIDS has exceeded that for family planning since the mid-2000s (Institute for Health Metrics and Evaluation, 2019), suggesting family planning should "piggyback" on HIV.

Family planning and HIV services can be integrated in three primary ways (Adamchak et al., 2010): (1) family planning can be added to HIV counseling and testing in order to reach populations otherwise not accessing family planning (e.g., those who are young, male, or unmarried); (2) family planning can be added to HIV care and treatment in order to limit vertical transmission; and (3) HIV services can be added to family planning so as to increase the percentage of the population tested, and to reduce vertical transmission.

The population field has long discussed integrating family planning and sexually transmitted infection services, often with explicit acknowledgement of the inherent challenges. As Willard Cates wrote near the time of the emergence of HIV, "*Rather than being natural bedfellows, the fields of [sexually transmitted diseases] and family planning are hardly even conversant companions*" (Cates, 1984: 317). Most of the focused discussion of integrating family planning and HIV services emerged around the time of the 1994 International Conference on Population and Development, which established reproductive health—requiring attention to the prevention of pregnancy, HIV, and sexually transmitted infections—as a development goal (Boonstra, 2011). At the time, those espousing integration argued that integrated programs could benefit from what family planning programs had learned about changing sexual behavior (Pachauri, 1994). As a result of the conference, some donor countries (other than the US) integrated their previously independent HIV/AIDS activities into broader reproductive health mandates (Merson et al., 2008). Shortly after the Conference, evidence emerged for the benefits of syndromic management of sexually transmitted infections as a means to combat

HIV, further promoting the benefits to integration of HIV services with existing reproductive healthcare (Walt et al., 2004). Other key efforts to promote integration took place in 2004, including the New York Call to Commitment by UNFPA and UNAIDS and the Glion Call to Action by the World Health Organization and UNFPA (Warren et al., 2017). But even with these bursts of attention, integration did not take off. In addition to technical challenges, resistance stemmed from many of the reasons discussed above that kept the family planning and HIV fields apart: the “good” family planning should not be mixed with the “bad” HIV/AIDS (May et al., 1991), and those who worked so hard for acceptance of family planning did not want to lose ground by associating with a stigmatized disease like AIDS (Zaba et al., 1998).

Integration efforts have varied in their effectiveness because of many of the challenges described above: merging two vertical programs, overcoming resistance to coordination and cooperation among staff, training workers to provide additional services, and donor preferences for HIV/AIDS over family planning (Adeokun et al., 2002; Blanc & Tsui, 2005; Lush et al., 2001; Stover et al., 2006; Strachan et al. 2004; Warren et al., 2017; Zaba et al., 1998). More recently, with the ascendance of donor funding for HIV as well as efforts to achieve the Millennium Development Goals and UNAIDS goals related to new infections and prevention of mother-to-child transmission (one prong of which is family planning), integration efforts have flowed towards incorporating family planning services into HIV programs. Evaluations have identified increased usage of family planning and referrals to family planning, as well as generally positive benefits to integration overall (Haberlen et al., 2017; Johnson et al., 2012; Wilcher et al., 2013), but also point to the multifaceted challenges associated with integration (Haberlen et al., 2017; Warren et al., 2017). Many of the recent discussions around integration have centered on the results from the ECHO (Evidence for Contraceptive Options and HIV Outcomes) study, which found no connection between women’s use of three different forms of contraception and HIV risk (Ahmed et al., 2019).

Respondents interviewed in 2009–10 in Malawi, Nigeria, and Senegal (Robinson, 2017) were aware of the potential benefits to integrating family planning and HIV services, and noted that in many cases services *were* integrated at the health center level because there was often only one person providing care, but they also described two main challenges to integration: (1) the separation of both donor and government structures for HIV and family planning; and (2) the limited capacity of overburdened primary healthcare providers and facilities to absorb new activities.

Respondents noted that historically it was difficult to integrate HIV and family planning because of the stigma associated with HIV: “In the imagination of the population, AIDS was a part of sex and prostitution”.<sup>16</sup> The fact that HIV was seen as a disease, unlike pregnancy, also made integration unlikely: people dying was different than people having lots of children. In Malawi, significant numbers of AIDS deaths made it additionally challenging to discuss family planning. “It’s a sensitive topic, family planning, in times of AIDS. I think there were even well-instructed people saying, ‘Why should we care about family planning with our populations dying?’”<sup>17</sup> But even in Nigeria, where the impact of AIDS was much less, associated mortality still challenged integration. Dr. Babatunde Osotimehin, the former head of Nigeria’s national AIDS commission (and later Executive Director of UNFPA), said in a 2011 interview that “*It was going to be impossible for me to stand up in a country where young men and women are dying and to say ‘Excuse me I think you need to cut down on birth rates’. It was just not kosher. . . You couldn’t begin to tell people ‘You know, you are still having too many children,’ when they had just lost their kids*” (as quoted in Goldenberg, 2011).

Many respondents noted that services were essentially integrated at the clinic level because clinics were so understaffed that the same person would provide family planning and HIV services,

<sup>16</sup> S11, national NGO.

<sup>17</sup> M36, bilateral organization.

as well as immunizations, malaria care, antibiotics, etc. As one respondent from Malawi put it, “Whether it’s on paper or not, we integrate family planning and HIV – you have to take advantage when you get people in [to the health center]”.<sup>18</sup> But more so than not, respondents also observed that therefore it was too much to ask an overburdened clinic worker to take on yet one more obligation (either family planning or HIV). As a Nigerian working for a federal ministry explained, “Integration means that providers are given more work. Training for all the extra things takes time, which is time away from the health post”.<sup>19</sup> In Malawi, a respondent working for a federal ministry noted how particular topics could lose out:

On the ground, by default, [integration] is actually happening, because you don’t have more than one service provider, and this poor service provider has to do everything. But we also find that, because of that, the family planning usually suffers, because she or he doesn’t have time to go through the whole array of whatever products they have in terms of family planning, and it will either be the male condoms that will be given out or Depo. Because it’s the quickest, and people are already well aware of it. So [integration] fails us in that way, because this person is overworked and they don’t have the time to go through the whole salesperson approach.<sup>20</sup>

Respondents also noted that integration was not necessarily desired by clients, and some NGOs also felt, like those in the late 1980s and early 1990s, that messages about family planning and HIV needed to be kept separate to prevent confusion. As someone from a Nigerian NGO described,

You’ve got a family planning clinic . . . and then you say, oh when she [the client] comes, oh, let’s talk about HIV/AIDS. And she’s like . . . ‘ugh, ok.’ And then after that, ‘Okay, would you like to test?’ [and she responds] ‘I came here for family planning!’ So even the patients aren’t very keen on integration in the first place, because it takes a fair amount of time”.<sup>21</sup>

Speaking to the second point, a respondent from a Senegalese NGO stated, “We introduce family planning and HIV at different times to clients because of confusion about condoms – are they for family planning or sexually transmitted infections? We don’t want to mix the two – we want the women to stay on message”.<sup>22</sup>

Respondents used words like “protectiveness” and “turf” to describe how integration might force one unit within the Ministry of Health to have to give something up. As a respondent in Malawi explained, “Even when we are talking about prevention of mother-to-child transmission, and this is a pregnant woman, and the reproductive health unit says, ‘The pregnant woman belongs to us.’ But this pregnant woman has HIV and the HIV unit says, ‘We also have something to do with this woman.’”<sup>23</sup> A respondent working within the government in Nigeria noted, “Even in the division you find that people just know their own legs and hands. They don’t know that others have also two legs and hands. Everybody is just on his own. But I think it’s improving”.<sup>24</sup> And as a Nigerian working for an international foundation gracefully described the issue, “It’s easy to create things, but hard to take them away”.<sup>25</sup>

In addition to government structures, respondents blamed donors’ bureaucratic structures for directly influencing their own programs. “It’s not just the government to blame,” said a respondent from Senegal, “it’s also the donors. It’s much easier to integrate at an operational level. Donors are more supportive at that level”.<sup>26</sup> When I asked why Malawi’s reproductive health and HIV programming were separated, the response came back, “Because at the World Health Organization they are two separate departments. They don’t talk to each other”.<sup>27</sup> But respondents found it challenging to work with donors even when they were supportive of integration:

<sup>22</sup> S10, local NGO.

<sup>23</sup> M7, national NGO.

<sup>24</sup> N27, federal ministry.

<sup>25</sup> N37, international foundation.

<sup>26</sup> S14, international NGO.

<sup>27</sup> M11, multilateral organization.

<sup>18</sup> M20, international NGO.

<sup>19</sup> N46, federal ministry.

<sup>20</sup> M34, federal ministry/multilateral organization.

<sup>21</sup> N24, national NGO.

The funding is not integrated. But the donors want integration. But if you ask, okay, give us money for everything [to be integrated] . . . for instance, we are doing prevention of mother-to-child transmission. If we say, give us money for family planning, for prevention, for . . . we will not get it. Because the donors' own money is coded only for prevention of mother-to-child transmission, so you have to go and find some other person who can fund your family planning, to be able to do that.<sup>28</sup>

Thus, while integration of family planning and HIV services is likely to remain challenging in all three countries (despite having very different family planning and HIV needs), actors in the health field in Malawi and Senegal tried to take advantage of the distinctions between family planning and HIV prevention in order to improve health and wellbeing. Echoing the early part of the HIV epidemic, many Malawian respondents spoke of a family planning condom rather than an HIV prevention condom in order to help introduce condoms into marriage, a place of increasing HIV transmission. Doing so had become necessary because government, NGO and donor HIV programs had connected condoms almost exclusively to sexually transmitted infections and non-marital relationships (Chimbiri, 2007; Kaler, 2004).

I think the whole issue of promoting condoms, getting them used, has been greatly challenged by having it seen as an HIV prevention technique as opposed to family planning. I think if we had, and if we do, position condoms much more as a family planning method, even if a woman wants to use them for HIV prevention, you avoid all these dynamics about who's being unfaithful to whom, and she says, 'Look, I don't want to get pregnant.' It's an immediate thing that everybody can appreciate. I think it's much easier to negotiate.<sup>29</sup>

Similarly, in Senegal adolescents could access condoms to supposedly protect from HIV, but really to prevent pregnancy. As one respondent explained, "Early pregnancy is a big deal culturally. The message on condoms has been appropriated by young women who want to protect against early, unwanted pregnancy".<sup>30</sup>

This brief discussion of the benefits and challenges to the direct integration of family planning and HIV programs across the three case study countries highlights the factors that both program funders and implementers will need to overcome in order to improve reproductive health, while simultaneously reflecting many elements of the longer history of the relationship between family planning and HIV interventions in each country.

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## Conclusion

There are many links between family planning and HIV programs both globally and within sub-Saharan African countries. In particular, HIV programs drew from many of the resources, discourses, and strategies of the family planning programs that preceded them. In many cases, HIV programs benefitted from these linkages, in particular the resources and strategies, such as family planning NGOs and social marketing of condoms. But, barriers between the population and HIV fields globally and nationally, as well as negative discursive links, have prevented full sharing of resources and strategies. These barriers may be difficult to overcome, as the preceding section on integration describes.

Given that so much of development assistance for health goes to family planning and HIV, through the types of programs they fund, donor organizations can potentially help undo divisions of the past as well as support efforts to integrate family planning and HIV services at the national and local levels. One possible pathway is for donors to emphasize structural interventions that help women and men prevent unwanted pregnancy and avoid sexually transmitted infections, and so go beyond the barriers between family planning and HIV programs. For example, increasing gender equity and moving closer to universal health coverage will offer benefits to both the family planning and HIV fields. Growing the numbers of frontline health workers so that one person at the local health post is not left doing everything will also help. In many cases, such programs will be less controversial than, say,

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<sup>28</sup> N39, international NGO.

<sup>29</sup> M27, international NGO.

<sup>30</sup> S19, university.

providing contraception to adolescents or HIV prevention services to sex workers or men who have sex with men. Such efforts are akin to “de-verticalizing” development assistance for health, and moving back towards the primary healthcare commitments of Alma Ata. For example, such a shift implies directly funding organizations and people, rather than issue-specific programs. Building strong national and local organizations as well as increasing human resources for health will leave countries better able to take care of the reproductive health needs of their populations, as well as new health crises that emerge.

These recommendations will not be easy for donor organizations to carry out. In fact, they imply a fundamental shift away from mainstream development thinking, from project-centered to people- and capacity-centered thinking. Such a shift means funding activities that many might critique as “unsustainable,” such as core support for organizations to keep the lights on and topping up health worker salaries to prevent brain drain. It also implies placing much of the control over decisions about the application of development assistance for health in the hands of countries themselves; something called for by the Paris Declaration on Aid Effectiveness but rarely achieved. Making these changes is, however, necessary to helping people reduce rates of unintended pregnancy and HIV infection, as well as to improving population health overall.

## References

- Adamchak, S., Janowitz, B., Liku, J., Munyambanza, E., Grey, T., & Keyes, E. (2010). *Study of family planning and HIV integrated services in five countries – Final report*. Family Health International.
- Adeokun, L., Mantell, J. E., Weiss, E., Delano, G. E., Jagha, T., Olatoregun, J., Udo, D., Akinso, S., & Weiss, E. (2002). Promoting dual protection in family planning clinics in Ibadan, Nigeria. *International Family Planning Perspectives*, 28(2), 87–95.
- Ahmed, K., Baeten, J. M., Beksinska, M., Bekker, L.-G., Bukusi, E. A., Donnell, D., . . . Welch, J. D. (2019). HIV incidence among women using intramuscular depot medroxyprogesterone acetate, a copper intrauterine device, or a levonorgestrel implant for contraception: a randomised, multicentre, open-label trial. *The Lancet*, 394(10195), 303–313. [https://doi.org/10.1016/s0140-6736\(19\)31288-7](https://doi.org/10.1016/s0140-6736(19)31288-7)
- Atkinson, B., & Nkera, R. W. (1993). *Logistics systems and contraceptive supply status review: Malawi Child spacing and AIDS Control programs*. Family Planning Logistics Management Project.
- Behrman, G. (2004). *The invisible people: How the US has slept through the global AIDS pandemic, the greatest humanitarian catastrophe of our time*. Free Press.
- Blanc, A. K., & Tsui, A. O. (2005). The dilemma of past success: Insiders’ views on the future of the international family planning movement. *Studies in Family Planning*, 36(4), 263–276.
- Boonstra, H. D. (2011). Linkages between HIV and family planning services under PEPFAR: Room for improvement. *Guttmacher Policy Review*, 14(4), 2–7.
- Boss, S., & Robinson, T. W. (1994). *The USAID family planning program within the Nigerian context*. U.S. Agency for International Development.
- Brier, J. (2009). *Infectious ideas: US political responses to the AIDS crisis*. University of North Carolina Press.
- Cates, W. (1984). Sexually-transmitted diseases and family-planning – Strange or natural bedfellows. *Journal of Reproductive Medicine*, 29(5), 317–322.
- Chimbiri, A. M. (2007). The condom is an ‘intruder’ in marriage: Evidence from rural Malawi. *Social Science & Medicine*, 64(5), 1102–1115.
- Devres, I. (1991). *Final evaluation of USAID/Senegal’s family health and population project*. U.S. Agency for International Development.
- Falobi, O. (1999). New AIDS policy in Nigeria raises the stakes – But optimism remains scarce. *AIDS Analysis Africa*, 9(5), 10–11.
- Family Health International. (1997). *Family Health International AIDS control and prevention project final report* (Vol. 1). Family Health International.
- Faruq, A. S. U. (1989). *Family planning: Islamic viewpoint*. Paragon.
- Fatusi, A. O., & Jimoh, A. (2006). The roles of behavior change communication and mass media. In O. Adeyi, P. J. Kanki, O. Odutolu, & J. A. Idoko (Eds.), *AIDS in Nigeria: A nation on the threshold* (pp. 323–348). Harvard University Press.
- FHI 360. (2012). *FHI 360’s journey toward an AIDS-free generation*; see [www.fhi360.org/news/fhi-360s-journey-toward-aids-free-generation](http://www.fhi360.org/news/fhi-360s-journey-toward-aids-free-generation)
- Finger, W. R. (1991). Clinic-based intervention projects: STD and family planning programs get involved. *Network*, 12(1), 11, 13–14.
- Fligstein, N., & McAdam, D. (2011). Toward a general theory of strategic action fields. *Sociological Theory*, 29(1), 1–26. <https://doi.org/10.1111/j.1467-9558.2010.01385.x>
- Gellman, B. (2000, July 5). *Death watch: The global response to AIDS in Africa*; see [www.washingtonpost.com/wp-dyn/content/article/2006/06/09/AR2006060901326.html](http://www.washingtonpost.com/wp-dyn/content/article/2006/06/09/AR2006060901326.html)
- Goldenberg, S. (2011). *Focus on HIV/AIDS cost family planning a decade, says UN Population Chief*; see

- [www.guardian.co.uk/environment/2011/oct/24/population-hiv-aids-mistake-un](http://www.guardian.co.uk/environment/2011/oct/24/population-hiv-aids-mistake-un)
- Greeley, E. H. (1988). The role of non-governmental organizations in AIDS prevention: Parallels to African family planning activity. In N. Miller & R. C. Rockwell (Eds.), *AIDS in Africa: The social and policy impact* (pp. 131–144). The Edwin Mellen Press.
- Green, E. C. (1994). *AIDS and STDs in Africa: Bridging the gap between traditional healing and modern medicine*. Westview Press.
- Green, E. C. (2011). *Broken promises: How the AIDS establishment has betrayed the developing world*. PoliPoint Press.
- Gruskin, S. (2009). Approaches to sexual and reproductive health and HIV policies and programmes: Synergies and disconnects. In L. Reichenbach & M. J. Roseman (Eds.), *Reproductive health and human rights* (pp. 124–139). University of Pennsylvania Press.
- Haberlen, S. A., Narasimhan, M., Beres, L. K., & Kennedy, C. E. (2017). Integration of family planning services into HIV care and treatment services: A systematic review. *Studies in Family Planning*, 48(2), 153–177. <https://doi.org/10.1111/sifp.12018>
- Hardee, K., Agarwal, K., Luke, N., Wilson, E., Pendzich, M., Farrell, M., & Cross, H. (1998). *Post-Cairo reproductive health policies and programs: A comparative study of eight countries*. The Futures Group.
- Iiffe, J. (2006). *The African AIDS epidemic: A history*. Ohio University Press.
- Institute for Health Metrics and Evaluation. (2019). *Financing global health 2018: Countries and programs in transition*. Institute for Health Metrics and Evaluation.
- John Snow, Inc. (1998). *Support to AIDS and Family Health Project: Final report*. U.S. Agency for International Development.
- Johnson, K., Varallyay, I., & Ametepi, P. (2012). *Integration of HIV and family planning health services in sub-Saharan Africa: A review of the literature, current recommendations, and evidence from the service provision assessment health facility surveys* (Vol. 30). ICF International.
- Kaler, A. (2004). The moral lens of population control: Condoms and controversies in Southern Malawi. *Studies in Family Planning*, 35(2), 105–115.
- Lordan, G., Tang, K. K., & Carmignani, F. (2011). Has HIV/AIDS displaced other health funding priorities? Evidence from a new dataset of development aid for health. *Social Science & Medicine*, 73(3), 351–355. <https://doi.org/10.1016/j.socscimed.2011.05.045>
- Lush, L., Walt, G., Cleland, J., & Mayhew, S. (2001). The role of MCH and family planning services in HIV/STD control: Is integration the answer? *African Journal of Reproductive Health*, 5(3), 29–46.
- Lwanda, J. L. C. (2004). Politics, culture, and medicine: An unholy Trinity? Historical continuities and ruptures in the HIV/AIDS story in Malawi. In E. Kalipeni, S. Craddock, J. R. Oppong, & J. Ghosh (Eds.), *HIV and AIDS in Africa: Beyond epidemiology* (pp. 29–42). Blackwell Publishing Ltd.
- May, J. F., Vandepierre, P., Sokal, D., Carael, M., Fox, E., Habiyakare, T., & Bucyendore, A. (1991). AIDS prevention and family planning. *The Lancet*, 338(8758), 63–64. [https://doi.org/10.1016/0140-6736\(91\)90064-v](https://doi.org/10.1016/0140-6736(91)90064-v)
- Merson, M. H., O'Malley, J., Serwadda, D., & Apisuk, C. (2008). HIV prevention 1: The history and challenge of HIV prevention. *The Lancet*, 372(9637), 475–488. [https://doi.org/10.1016/s0140-6736\(08\)60884-3](https://doi.org/10.1016/s0140-6736(08)60884-3)
- Ministry of Health and Social Action, National Family Planning Program of Senegal, & Population Council. (1995). *Situation analysis of the family planning service delivery system in Senegal – Condensed report*. The Population Council.
- Odutolu, O., Ahonsi, B. A., Gboun, M., & Jolayemi, O. M. (2006). The national response to HIV/AIDS. In O. Adeyi, P. J. Kanki, O. Odutolu, & J. A. Idoko (Eds.), *AIDS in Nigeria: A nation on the threshold* (pp. 241–279). Harvard University Press.
- Oluwaseun, J. (2003). Tribute to a man of valour. *Growing Up*, 11(2), 8.
- Orisasona, S., Akpan, T., & Adejoh, P. (1996). *People's perspectives on family planning and population policies in Nigeria*. Empowerment and Action Research Centre.
- Pachauri, S. (1994). Relationship between AIDS and family planning programmes: A rationale for developing integrated reproductive health services. *Health Transition Review*, 4(Suppl), 321–347.
- Pfeiffer, J. (2004). Condom social marketing, pentecostalism, and structural adjustment in Mozambique: A clash of AIDS prevention messages. *Medical Anthropology Quarterly*, 18(1), 77–103. <https://doi.org/10.1525/maq.2004.18.1.77>
- Piot, P. (2012). *No time to lose: A life in pursuit of deadly viruses*. WW Norton and Company.
- Pisani, E. (1999). *Acting early to prevent AIDS: The case of Senegal*. UNAIDS.
- Poleykett, B. (2012). *Intimacy, technoscience, and the city: Regulating "prostitution" in Dakar, 1946–2010*. Ph.D. dissertation, London School of Economics, London, GB.
- Population Services International. (n.d.). *PSI at a glance*; see [www.psi.org/about/at-a-glance/](http://www.psi.org/about/at-a-glance/)
- Population Technical Assistance Project. (1988). *Contraceptive Social Marketing (CSM) assessment*. International Science and Technology Institute.
- Renne, E. P. (1996). Perceptions of population policy, development, and family planning programs in Northern Nigeria. *Studies in Family Planning*, 27(3), 127–136.
- Robinson, R. S. (2011). From population to HIV: The organizational and structural determinants of HIV outcomes in sub-Saharan Africa. *Journal of the International AIDS Society*, 14(Suppl. 2), 1–13. <https://doi.org/10.1186/1758-2652-14-s2-s6>
- Robinson, R. S. (2012). Negotiating development prescriptions: The case of population policy in Nigeria. *Population Research and Policy Review*, 31(2), 267–296. <https://doi.org/10.1007/s11113-011-9222-5>

- Robinson, R. S. (2015). Population policy in sub-Saharan Africa: A case of both normative and coercive ties to the world polity. *Population Research and Policy Review*, 34(2), 201–221. <https://doi.org/10.1007/s11113-014-9338-5>
- Robinson, R. S. (2017). *Intimate interventions in global health: family planning and HIV prevention in sub-Saharan Africa*. Cambridge University Press.
- Shiffman, J. (2008). Has donor prioritization of HIV/AIDS displaced aid for other health issues? *Health Policy and Planning*, 23, 95–100.
- Shiffman, J., Berlan, D., & Hafner, T. (2009). Has aid for AIDS raised all health funding boats? *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 52, S45–S48.
- Sinding, S., & Seims, S. (2002). Challenges remain but will be different. In N. Sadik (Ed.), *An Agenda for people: The UNFPA through three decades* (pp. 137–150). New York University Press.
- Smith, D. J. (2014). *AIDS doesn't show its face: Inequality, morality, and social change in Nigeria*. University of Chicago Press.
- SOMARC/The Futures Group International. (1997). *SOMARC country workplans*. SOMARC/The Futures Group International.
- Stephens, B., & Ba, B. (1996). *Evaluation of the Senegal social marketing program*. U.S. Agency for International Development.
- Stover, J., & Johnston, A. (1999). *The art of policy formulation: Experiences from Africa in developing national HIV/AIDS policies*. The Futures Group.
- Stover, J., Dougherty, L., & Ham, M. (2006). *Are cost savings incurred by offering family planning services at Emergency Plan HIV/AIDS care and treatment facilities?* (USAID Edit). U.S. Agency for International Development.
- Strachan, M., Kwateng-Addo, A., Hardee, K., Subramaniam, S., Judice, N., & Agar, K. (2004). *An analysis of family planning content in HIV/AIDS, VCT, and PMTCT policies in 16 countries*. POLICY Project.
- Sweat, M. D., Denison, J., Kennedy, C., Tedrow, V., & O'Reilly, K. (2012). Effects of condom social marketing on condom use in developing countries: A systematic review and metaanalysis, 1990–2010. *Bulletin of the World Health Organization*, 90(8), 613–622. <https://doi.org/10.2471/blt.11.094268>
- Thompson, C. (1995). *Condom Initiative (Condoms, Contraception and Marriage): Report on Consultation Meeting*. Support to AIDS and Family Health.
- Timberg, C., & Halperin, D. (2012). *Tinderbox: How the West sparked the AIDS epidemic and how the world can finally overcome it*. Penguin Press.
- Timbs, L. (2011). *Lethal, incurable, and controversial: The responses of American NGOs to the AIDS epidemic in Southern Africa*. MA thesis, George Washington University, Department of History, Washington, DC.
- Tipping, S. (1993). *The marketing of CSM condoms for AIDS prevention*. U.S. Agency for International Development/Office of Population.
- Trinitapoli, J., & Weinreb, A. (2012). *Religion and AIDS in Africa*. Oxford University Press.
- U. S. Agency for International Development. (1992). *Project authorization for the Senegal AIDS Control and Prevention Project*. USAID.
- U.S. Agency for International Development. (1995). *Family planning in Nigeria: The human costs of discontinuing USAID'S family planning program*. USAID.
- U.S. Agency for International Development. (2004). *Directory of associations of people living with HIV/AIDS* (2nd ed.). USAID.
- Walt, G., Lush, L., & Ogden, J. (2004). International organizations in transfer of infectious diseases: Iterative loops of adoption, adaptation, and marketing. *Governance*, 17(2), 189–210. <https://doi.org/10.1111/j.1468-0491.2004.00243.x>
- Warren, C. E., Mayhew, S. H., & Hopkins, J. (2017). The current status of research on the integration of sexual and reproductive health and HIV services. *Studies in Family Planning*, 48(2), 91–105. <https://doi.org/10.1111/sifp.12024>
- Wilcher, R., Hoke, T., Adamchak, S. E., & Cates, W. (2013). Integration of family planning into HIV services: A synthesis of recent evidence. *AIDS*, 27(1), S65–S75.
- Williamson, N., & Boohene, E. (1990). AIDS Prevention in family planning programs. In P. Lamptey & P. Piot (Eds.), *The handbook for AIDS prevention in Africa* (pp. 203–210). Family Health International.
- Wilson, E. (1998). *Reproductive health case study: Senegal*. The Futures Group International.
- Wilson, A. (2012). Treating the government disease: AIDS conspiracy rumors, the Government of Malawi, and the rhetoric of accountability. *Contemporary Legend*, 2(Series 3), 57–84.
- Zaba, B., Boerma, T., & Marchant, T. (1998). *Family planning in the era of AIDS: A social science research agenda*. International Union for the Scientific Study of Population.
- Zimmerman, M., Larivee, C., Quiroga, R., Gopinath, C., Ringheim, K., Wood, S., Wilson, A., Daunas, P., Bruce, L., & Sedlak, P. (2002). *Developing materials on HIV/AIDS/STIs for low-literate audiences: A guide*. PATH.



# Population Projections and Population Policies 21

Thomas Buettner

## Introduction

Population projections can be – depending on circumstances and resources – an *ad hoc* exercise of extrapolation of current population figures or a complex process that involves very detailed evaluations of mortality, fertility, and migration data and computation of their most likely future trends. Technological progress has clearly made the production of the latter type of projection easier, but insufficient, biased, or incomplete statistical data remain a stark challenge for many countries.

Population projections are made by academics, private think tanks and NGOs, and international and national statistics agencies and used by the public sector, civil society, and private businesses. This chapter covers some of the basic and most visible elements of population projections and their impact on population policies. It focusses on projections for national populations, and on projections prepared by international organizations,<sup>1</sup> such as the United Nations' Population Division or the European

Commission's Eurostat. Not covered are projections of households or sub-national populations—traditionally done by National Statistical Offices (NSO), such as the U.S. Census Bureau (USA) or Rosstat (Russian Federation). Also not covered here are population projections of urban and rural populations, a topic the United Nations has covered for a long time (for more information, see Buettner, 2015). Some notable literature on population projections is available in Caselli et al. (2006), (see Chapters 72–78, George et al., 2004; Wattelar, 2006).

Population projections are a valuable tool to inform policymakers, helping them to formulate reasonable, sustainable, and achievable goals. The various projection models and methods allow policymakers to address very general or specific topics, encompassing international, regional, national, sub-national, social, and health-related topics. At the same time, population projections, if raising controversial findings or touching on sensitive issues, may also be neglected by policymakers, or even received as a threat and therefore suppressed. Population projections may be proven wrong because of unforeseen or unforeseeable events, such as natural disasters and health emergencies (e.g., epidemics, pandemics). They can also be wrong due to erroneous expectations or inadequate models. Therefore, population policies and population projections have a complicated relationship.

<sup>1</sup> Despite a need for updating to reflect recent improvements, see the 2001 review of international population projections, which provides a useful summary on the subject (O'Neill et al., 2001).

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Population projections are sometimes distinguished from population forecasts, the former being classified as the numerical results of certain assumptions and the latter as an (accurate) prediction of future population change, and usually within prediction intervals. This chapter uses both meanings of the term projection, where required. A long-standing discussion among demographers is the value of simple versus complex projection models (Smith, 1997). This topic will not be further discussed here.

The seminal International Conference on Population and Development (ICPD), held in 1994 in Cairo, Egypt (United Nations Population Fund, 2004, 2014), used population projections prepared by the United Nations Population Division (United Nations, 1995) as a rationale, justification, and illustration for the urgency for action for the Conference. In the 1990s, population data was showing the rapid global population growth that had accelerated in the 1960s still moving forward; projections based on this data raised alarms about possible impacts on health, welfare, and women's quality of life.<sup>2</sup> Therefore, in Chapter XII of the ICPD *Programme of Action* it is stated: "*Particular attention should be given to the monitoring of population trends and the preparation of demographic projections*" as they bear on the attainment of health, education, gender and ethnic social equity goals (United Nations Population Fund, 2004: 103).

The main producer of international population projections is the United Nations Population Division, which has so far issued 26 Revisions, the latest labelled 2019 Revision of the World Population Prospects (United Nations, 2019c). Other sources for international projections are the U.S. Bureau of the Census International

Data Base (IDB) (U.S. Census Bureau, 2019b), the Wittgenstein Centre for Demography and Global Human Capital (WiC) (Wittgenstein Centre for Demography and Global Human Capital, 2018), and the World Bank (World Bank, 2020). Lately, the Institute for Health Metrics and Evaluation (IHME) has emerged as an ambitious producer of global population projections (Vollset et al., 2020). The WiC projections adopt the past estimates (from 1950 to the base year) from the UN's World Population Prospects, with adjustments as needed, but uses different assumptions to make its projections of future population. The World Bank's estimates and projections also rely on the UN's data, including the projections, and adjust estimates and projections as needed.<sup>3</sup> The projections produced by the IHME team are independent from the UN estimates but for the past, i.e., historical data from 1950 to 2017, are quite close (for the 195 countries) to the UN's estimates.

Producers of international projections but with a regional scope are CELADE<sup>4</sup> (Economic Commission for Latin America and the Caribbean, 2020) and EUROSTAT<sup>5</sup> (EUROSTAT, 2020a).

Population projections are also prepared by national institutions, for instance by the National Statistical Offices (NSOs). Often a national census provides the basis for preparing national population projections. National population projections are of great utility as they could be tailored to the specific demographic and socio-economic situations. Large countries, such as China, the U.S., Germany, Russia, the United Kingdom, France, and Canada may include sub-national entities (federal states, provinces,

<sup>2</sup> The population projections from the 1994 Revision for the world were very close to the most recent updated estimates and projections from the 2019 Revision: for the year 2015, the difference between the 1994 Revision and the 2019 Revision global population estimate is about 89 million people, or 1.2% larger than the latest edition. Much larger differences do exist for certain regions and especially for individual countries. Generally, the least developed countries grew considerably faster than was foreseen in 1994, but the middle and high-income countries grew far less than expected, so these projection errors balanced out.

<sup>3</sup> To avoid duplication with the UN projections, the World Bank no longer publishes its own population projections but uses them internally to assess the eligibility of countries for various types of funding.

<sup>4</sup> CELADE (Latin American and Caribbean Demographic Centre is part of the Economic Commission for Latin America and the Caribbean (ECLAC).

<sup>5</sup> In April 2020, Eurostat published population projections based on 2019 data. The projections' time horizon is 2019–2100. The population projections provide data for 31 European countries; see <https://ec.europa.eu/eurostat/web/population-demography-migration-projections/population-projections-data>, accessed on July 9, 2020.

administrative regions, and others). Some countries also include race/ethnicity and other attributes deemed important for policy making.

National population projections use a variety of methods to generate assumptions, and diverse computational tools for their population projections. A complete inventory of methods, assumptions, and results is not available, especially for less developed countries. But even a recent review of 16 more developed countries (United Nations Economic Commission for Europe & Conference of European Statisticians, 2014) found that common definitions and methodologies, as well as a consensus about the desired time horizons and frequency of population projections, were lacking.

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## Preparing Population Projections

### Establishing the Base

Population projections need a solid foundation. Without valid and consistent estimates of past trends and current demographic settings, population projections would become inaccurate at best, and at worst, arbitrary.

Most of the time needed for the preparation of population projections is to review, adjust, and establish demographic estimates of the past. Recognizing this requirement, the United Nations has over the course of the 26 revisions of the World Population Prospects (WPP) included newly revised time series of past population estimates, going back to 1950 (Buettner, 2021). For many past revisions, past estimates were somewhat restricted to a reduced set of indicators with limited internal consistency. After the year 2000, demographers at the UN Population Division moved the base for their projections, in one country after another, back to 1950 for ensuring consistency between the components of change and the population figures, including for each age group and by sex. By the 2012 Revision, that process was finished. All data from 1950 up to the base year<sup>6</sup> of the future projections are now

also the results of cohort-component projections, revised with the latest data, but are still labelled past estimates. The difference between past estimates and future projections is now only that the former has only one variant, the UN's "best" estimate of past population levels, while the latter has several variants, including "low," "medium" and "high" variants based on different assumptions about future fertility trends, plus variants based on constant fertility, constant mortality, zero net migration and other assumptions. These projections also have prediction confidence intervals (for a comprehensive overview of the process, see United Nations, 2019d: 3–13).

It has been noted that the process of establishing the past and producing the best estimates of the base populations may well be the most laborious and time-consuming part of the whole exercise, consuming about 50–80% of the work invested in each Revision. For ensuring complete internal consistency, past estimates are (slightly) revised and updated when new information such as a census, survey results, and other data become available. A change in a recent population figure or the revision of recent fertility or mortality estimates may prompt, *inter alia*, a revision of the base population in 1950. In other words: past estimates and projected populations are, therefore, a moving target. The process of recovering the past often produces data (slightly) different from official data published by NSOs and others. The commitment of the UN Population Division to establish an internally consistent dataset over time, sex, and age has occasionally invited criticism from national institutions. As stated, it is of foremost importance that the past estimates be as accurate as possible, removing artefacts such as census under- or over-enumerations (Bamgbose, 2009; Okolo, 1999), and especially correcting for missing children, insufficient coverage, and definitional differences.

### Preparing Projection Assumptions

It is often believed that population projections – the outcomes – and the assumptions underlying the projections – the inputs – are quite different things. It is also often assumed that assumptions

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<sup>6</sup> Sometimes called jump-off year.

are merely opinions or experts' beliefs about future trends. There is some truth to this, but a clarification is in order. Formulating projection assumptions are at the heart of any projection exercise.

Preparing projection assumptions is guided/informed by the format of the projection, its details, and the methodology adopted. For the sake of conciseness, here a distinction is made between projections of total populations and the classical cohort-component method of population projections. Both approaches may be applied to a single country, the sub-regions of a single country or groups of countries, up to the world.

Assumptions, properly prepared, are themselves projections of the three demographic components of change: mortality, fertility, and (net) migration. They are usually submitted to a calculating device – the projection program, the calculation algorithm – that calculates future population by combining said components of change with a starting population. Population projection assumptions are prepared under uncertainty, as even if we had full knowledge of the past, the future may not follow directly from past trends. The United Nations projections often contained a disclaimer: “*When preparing assumptions for the United Nations projections, it is common practice to assume that orderly progress will be made and that, during the projection period, such catastrophes as new wars, famines or epidemics will not occur, although ongoing situations such as AIDS and other epidemics, breakdown of health and other infrastructure, wars and civil strife are taken into consideration*” (United Nations, 1998: 89).

Projection assumptions may be classified according to different criteria. Keyfitz distinguished three types or modes of population projections (Keyfitz, 1984: 17), namely the concrete or unconditional forecast that simply asserts what the future population will be; the self-annulling forecast, primarily intended as a warning of what will happen unless something is done to prevent it; and the sensitivity forecast, showing the difference that a policy under consideration will make. Here, a distinction is made according

to the way assumptions are prepared, that is normative assumptions, analytic assumptions, policy-driven assumptions, and assumptions based on expert opinions. The distinctions are not clear-cut but may serve as a guiding principle.

## Normative Assumptions

Normative projections are based on extrapolations of previous trends, here limited to the projection of total populations. Extrapolation requires relatively little effort and is often done using certain mathematical functions. Such simple extrapolation may also be comparatively accurate. These projections lack, however, the details the cohort-component method affords and are best suited for *ad hoc* or preliminary applications. The simplest assumption for projections of total populations is assuming a mathematical model of change (growth or decline) and fitting it to historical data. Among suitable mathematical models are linear models (linear extrapolation), exponential models, and logistic models. For short projection periods, a linear extrapolation may suffice, while for longer periods into the future, an exponential growth path may be assumed. The latter has the known caveat that exponential growth is boundless and may result in implausible figures. The logistic function, which has an upper bound, avoids boundless growth but requires some knowledge about where that upper bound may lie.

## Analytic Assumptions

Analytic assumptions are based on statistical analyses of mortality, fertility, and migration trends. While in the normative case the selected functional form of population over time is the underlying assumption, for the classic cohort-component projection method it is necessary to infer the future paths of the three key demographic components: mortality, fertility, and migration, usually by sex and age. When adding more dimensions (health status, labor force

participation, educational attainment, to name a few), assumptions about the future course of these additional dimensions also need to be formulated.

For a concise description of the cohort-component projection method, (see Burch, 2018: 129–133 & 135–151; George et al., 2004; United Nations, 1956).

During the last decade, the United Nations Population Division has significantly revised their projection methodology, with the cohort-component projection method still at its heart as the underlying computational device. But furnishing the projection assumption for mortality, fertility, and migration was revised to: (i) reflect better the inherent uncertainties of future trends; and (ii) to utilize the rich empirical experiences of other countries. The new statistical modelling framework now used by the United Nations still employs the established bi-logistic parametric functions (United Nations, 2006: Chapter 6), but within a hierarchical Bayesian model, where uncertainties are constrained by the data on the demographic trajectories of other countries. This approach has the notable property of modeling the parameters of the bi-logistic function *“for different countries as arising from a “world” distribution. This leads to estimates that borrow strength from data for other countries, and makes the model hierarchical. This is important because, for a single country, the data are sparse . . . , and estimation of the country-specific double-logistic curve can be unstable. . . The hierarchical model stabilizes the estimation”* (Raftery et al., 2014a, b: 61). In a complex process, countries are thus “learning” from other countries.

The modeling of life expectancy underwent some further improvements. Instead of modeling male life expectancy separately – which proved to be problematic – the difference between female and male life expectancy was modelled (Raftery et al., 2014a, b). Life expectancy for males is then calculated as female life expectancy plus/minus the sex differentials. Hence, male life expectancy could be interpreted as female life expectancy plus one additional cause of death: maleness. Provisions for the impact of HIV/AIDS are also implemented (Godwin & Raftery, 2017; Raftery et al., 2013). The COVID-19 pandemic, which

started just after the release of the 2019 Revision, could not be considered and is absent from the results. The United Nations, however, is reflecting certain relevant events such as famines, civil strife, natural disaster, and pandemics (as the HIV/AIDS pandemic) once their demographic impacts become clear and sufficiently documented.

Due to its erratic nature, sudden changes, and lack of consistent, reliable, and sufficient flow data, international migration is incorporated as net migration. The formulation of assumptions about future net migration considers available information on migration movements, data on labor migration, estimates of flows of undocumented, and irregular migration, and data on refugees and asylum seekers movements, plus changes in migrant stock (United Nations, 2019d: 34–35).

The ensuing population projections combine the projected trajectories of life expectancies and total fertility rates, plus the “normal” migration assumptions into 10,000 population projections, from which the median, the 80% and 95% predictive intervals are subsequently obtained. In a final step, the probabilistic projections – 10,000 trajectories for each country – are then aggregated, making reasonable provision for the between-correlation for total fertility (Fosdick & Raftery, 2014). Net migration is included in a deterministic way. A comprehensive documentation of the UN’s current methodology is given in United Nations (2019d).

In a second step, nine scenarios, with the median of the probabilistic fertility trajectories taken as the Medium variant/scenario, are added by combining No-change variants and High and Low fertility variants. These scenarios are discussed under the heading of Policy-driven Scenarios (see Table 21.1).

Recently, the IHME has produced their first global population projection for 195 countries (Vollset et al., 2020). The projection covers the same period as the UN’s WPP (1950–2100, here with past estimates 1950–2017 and projections 2018–2100). Fertility as the main driver of population dynamics was modelled as a function of (projected) educational attainment and

(projected) contraceptive use, thus offering guidance for the formulation of policies in these areas. For mortality, a scenario of the 2017 edition of the Global Burden of Diseases, Injuries, and Risk Factors Study (Roth et al., 2018) was integrated. Net migration was projected by a time series model with covariates. In addition to a reference scenario, several alternative scenarios were produced.

### Assumptions for Policy-Driven Scenarios

Most international population projections prepare certain what-if scenarios. These scenarios employ a standard approach to summarize the consequences of selected assumptions, even implausible ones, for future trends of mortality, fertility, and migration. The latest UN population projections prepared a total of nine scenarios (United Nations, 2019d: 36–37), which the UN calls “variants.” In addition to the High, Medium, and Low variants published in earlier projections, six additional variants were published; these are all shown in Table 21.1 below.

The differences in the projections that follow from these different assumptions are substantial. For example, under the low fertility variant, global population is projected to peak at 8.9 billion in 2055 and fall to 7.3 billion by 2100. By contrast, under the high-fertility variant, global population is projected to keep growing to reach 15.6 billion by 2100, or more than twice as high (United Nations 2019b). Other “what-if” scenarios such as “constant-fertility” and “no

change” show even greater population increase if current demographic variables continue unchanged. These projections are thus not meant as “predictions” of what will happen; they are contingent scenarios to show policymakers what will likely happen under different combinations of changes in the key demographic variables.

A similar example, also illustrating the impact of different assumptions of mortality, fertility, and migration on long-term population trends, is the WiC projection published in 2018 (European Commission, 2018b). Scenarios are given for 201 countries, with three different migration scenarios in addition to different mortality, fertility, and education scenarios. One aim of the exercise was to provide benchmarks to understand the impact of different migration patterns on national population trends. The IHME projections also used varying projections; they prepared a reference and four alternative scenarios driven by different assumptions about future paths of female education and access to modern reproductive health services (Vollset et al., 2020: 5). These assumptions in turn produce different long-term mortality and fertility pathways and, ultimately, different population levels.

For the formulation of population policies and development strategies, it is valuable to know the bounds or limits that policy interventions may have from a demographic perspective. The Momentum scenario is designed to provide an answer. Though it is also a what-if constellation, it illustrates the impact of age structure on long-term population change (Blue & Espenshade, 2011; United Nations, 2017b). During the

**Table 21.1** Projection scenarios by the United Nations world population prospects

Projection variant	Assumptions		
	Fertility	Mortality	International migration
<i>Low fertility</i>	Low	Normal	Normal
<i>Medium fertility</i>	Medium	Normal	Normal
<i>High fertility</i>	High	Normal	Normal
<i>Constant-fertility</i>	Constant	Normal	Normal
<i>Instant-replacement-fertility</i>	Instant-replacement	Normal	Normal
<i>Momentum</i>	Instant-replacement	Constant	Zero
<i>Constant-mortality</i>	Medium	Constant	Normal
<i>No change</i>	Constant	Constant	Normal
<i>Zero-migration</i>	Medium	Normal	Zero

Source: United Nations (2019d: 37)

demographic transition, as fertility declines, the past high fertility still leaves the population with very large cohorts of women of reproductive age. By combining the instant-replacement-fertility variant, the constant-mortality variant, and the zero-migration variant, the population momentum is revealed. According to the 2019 Revision of World Population Prospects, most of the world's population growth until 2050 is due to momentum forces. This finding offers clear policy options, in two ways: it narrows what interventions on fertility may achieve, and at the same time, shows the maximum amount of change possible. It is to be noted that population momentum is different for different countries, and its largest impact on growth lies in countries still in the early stages of the fertility transition.

A more hypothetical, but interesting, approach for unraveling the impact of certain assumptions on future population trends is to invert the usual approach by estimating/calculating the necessary level/amount of one component of change to arrive at certain population size or composition. In 2001, the UN published a paper on "replacement migration", which investigated how large the number of migrants must be (expressed as positive net migration) to offset: (a) projected population decline; and (b) projected declines in the working-age population. For eight of the countries reviewed—France, the United Kingdom, the U.S., Germany, and the Russian Federation—the numbers of migrants needed to offset overall population decline is much like their past immigration experience. For three others, i.e., Italy, Japan, and the Republic of Korea, the necessary immigration would be much higher than observed in the past. However, for all the countries considered, the immigration needed to maintain the working-age population would be much higher than for overall population stabilization. The level of migration needed to offset population aging is extremely high, and seems out of reach, because of the extraordinarily large numbers of migrants required (United Nations, 2001: 4). These results – population aging is unavoidable, population decline is possible – were later confirmed by other studies (Craveiro et al., 2019; Lutz & Scherbov, 2002).

## Expert-Opinion Assumptions

Why not use the pooled opinion of carefully selected experts to help improve population projections? Though Ahlburg (Ahlburg, 2001) has argued that tapping expert opinion would have little impact on forecast accuracy, he pointed to a promising way of obtaining expert opinion in a structured way. An example of such expert-based population projections was prepared by the Wittgenstein Centre for Demography and Global Human Capital (WiC); see Lutz, 2013; Lutz et al., 2014. An updated version was published in 2018 (European Commission, 2018b).

A two-step formalized procedure was employed for eliciting experts' opinions about future trends of key demographic indicators. In the first step, 122 experts from all regions of the world were surveyed online to obtain their opinions on future trends. In a second step, "meta experts" met to discuss and evaluate the outcomes of the online survey in qualitative terms. The outcome was then translated into numerical time series for the key demographic variables, which were then used to generate the projections (KC et al., 2013). The utility of expert opinions for the formulation of migration assumptions was limited (Sander et al., 2014). Nevertheless, the projection ventured to implement international migrations as bi-directional flows instead of just net migration. This was a first, and very promising, innovation. Another one was the integration of educational attainment as an additional dimension for international population projections. The latter required the Wittgenstein Center to develop assumptions about the future trends of educational attainment, and combine them with assumptions regarding their effects on mortality and fertility, for all countries involved. The 2014 Projections were published with up to five demographic scenarios compatible with the Shared Socioeconomic Pathways (SSPs) used in climate research (Riahi et al., 2017) and, for the Medium scenario, for six different educational attainment assumptions. The results of the experts' opinion survey considerations were later combined with additional assessments about countries in different

stages of the mortality and fertility transition. This provided a rich and elaborate underpinning of novel assumptions to generate new projections. Notably, the Wittgenstein Center projections suggested that if increased education has the expected strong effect on fertility, reducing it significantly in today's low-income, high-fertility countries, then global population growth will halt sooner than in the UN median projections (Lutz et al., 2014).

A follow-up of the 2014 WiC projections was published (European Commission, 2018b) that presented five scenarios, compatible with the main SSP scenarios SSP1–3 (O'Neill et al., 2017), plus two special migration scenarios (Wittgenstein Centre for Demography and Global Human Capital, 2018).

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## Processing Population Projections

Population projections are the product of a base population estimate and appropriate assumptions, each being disaggregated as needed. Base population and assumptions are combined in a computational procedure/algorithm that calculates the projection results. There have been several numerical methods successfully employed, such as simple extrapolation procedures using a mathematical function, the cohort-component projection methods, multistate models (i.e., combining cohort-component procedures with geographic, health, employment, health status and other factors), micro-simulation, agent-based models, and more.

Most population projections require computational support. Simple trend extrapolations may be done as a back-of-the-envelope calculation with pen and paper, but serious projects need sophisticated software programs to tackle the amount of data, the computational complexities, and the summarizing of results. There is a rich history of computer software dedicated to population projections. As the hardware progressed and operating systems grew more powerful, existing projection software was adapted or fell by the wayside. Some such software was kept alive for several decades (the UN's FORTRAN

coded Abacus projection program was used for almost 50 years, starting in the 1960s), while others had a much shorter lifespan. Projection software may be differentiated by the topic and the complexity at hand. Relatively simple projections are often implemented as spreadsheet programs like Excel, or in the free software environment for computing and graphics called R.

## Projection Software

Before the area of digital computers, demographers already produced population projections, but with much more manual effort and less detail than today. The early world population projections by the United Nations employed electro-mechanical calculation machines and pencil and paper. The first UN Revision utilizing the power of digital computers was prepared in the 1960s and issued in 1973 as the 1968 Revision (United Nations, 1973), just in time for the first United Nations World Population Conference, held in Bucharest, Romania in 1974.<sup>7</sup>

The progress in computing systems, from mainframes to workstations to web-based platforms, the advancement of programming languages and programming environments and the emergence of powerful relational databases made it possible to add unprecedented detail, precision, processing speed, as well as tabulation and charting power to population projections. The rapid production of population projections has also helped policymakers to better integrate future population trends in a timely manner into the design and implementation of their policies and interventions.

There have been and still are numerous population projection software systems. Many National Statistical Offices employ proprietary systems: some are available to the public, but many remain inaccessible. There are several software systems developed by researchers for a particular research project or scientific paper. Here is

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<sup>7</sup> See Chap. 15: *Population Institutions and International Population Conferences* of this *Handbook* (Bernstein et al., [this volume](#)).

a brief account of some software packages, beginning with those that have gained some prominence among users.

Spectrum (Stover, 2020) is a suite of software tools that include the software model DemProj (**Demographic Projection**), FamPlan (a planning tool for family planning programs), and LiST (projecting the impact of child health interventions on child survival). In addition, Spectrum provides a set of tools that estimate the course and treatment of health challenges such as HIV/AIDS, malaria, sexually transmitted diseases, and non-communicable diseases. The Spectrum package has been for some time the most user-friendly software for population projections. Projections can be done with the user's own demographic input data, or with the latest estimates and projections from the United Nations, which can be used as such or as a seed for the researcher's own explorations. Spectrum and its modules/components are under regular maintenance and user support. Spectrum has achieved much prominence not only for its user-friendly layout, flexibility, and close connection to the UN projections, but also for being the standard tool for analyzing the HIV/AIDS pandemic, mostly at the local level by experts from the affected countries.

DAPPS (U.S. Census Bureau, 2019a) is a program designed to help users analyze and produce population projections with ease. It is based on the computational power of the 1994 U.S. Census Bureau's original Rural-Urban Projections (RUP) program (U.S. Census Bureau, 2013), but complemented with an interactive and user-friendly spreadsheet interface for data entry. The program produces population projections by single years of age and single calendar years. DAPPS includes numerous demographic analysis tools; for a documentation, see Arriaga et al., 1994b; analytical spreadsheets included in DAPPS are described in a separate document (Arriaga et al., 1994a).

Researchers at the University of Washington, together with the UN Population Division, have made available a complex software package to generate population projections for all countries of the world using several probabilistic

components, such as total fertility rate and life expectancy, entitled "bayerPop" (Sevčiková et al., 2020). It employs the original estimates from the United Nations' 2019 Revision of WPP (United Nations Population Division, 2020) and is available as a package programmed in the statistical programming language R. Researchers at the IHME have developed a set of modules for their global population projection project that includes all their statistical models and projection routines. The complex software set was programmed in the Python language; it is freely available on GitHub,<sup>8</sup> the online software development platform.

The following software packages are either discontinued or used within certain organizations, but rightfully claim inclusion here for historical or documentary reasons.

ABACUS, the United Nations Population Projection Program, was first implemented on a mainframe computer from the 1960s through the late 1980s, and then on PCs, programmed in FORTRAN. It was initially distributed with a fee, but later only used internally (United Nations, 1989). MORTPAK, the United Nations software package for demographic measurement (United Nations, 2013), has had widespread use throughout research institutions in less developed and more developed countries since its introduction in 1988. Its latest version 4.3 combines 20 different applications for demographic estimates. It has been constructed with worksheet-style, full screen data entry which takes advantage of modern computers. The application PROJCT carries out single-year projections of a population by age and sex, based on initial male and female populations in 5-year age groups and assumed levels and changes in mortality, fertility, and migration.

The International Institute for Applied Systems Analysis (IIASA) published a population projections tool for multisector population-development-environment analysis, called PDE.

<sup>8</sup> See <https://zenodo.org/record/3756183#.Xp0aAahKiUk>, accessed on August 31, 2021.



The software is still available, but is no longer maintained.<sup>9</sup>

The World Bank employed a computer program, developed by Hill (Hill, 1990), named PROJ3S, that was used for their world population projection. The World Bank is now using mainly the UN Projections, but still produces its own internal projections, which are needed to establish countries' conditions for lending and granting.

EUROSTAT produces international projections on a regular basis for the 27 EU member states and the countries belonging to the group of EFTA<sup>10</sup> countries. The projections use scenarios to capture uncertainty and is programmed in the R language (EUROSTAT, 2020b).

FIVFIV/SINSIN, a computer program developed for the Population Council to support development planning in less developed countries (Shorter et al., 1995) is no longer available.

LIPRO (**LIFESTYLE PROJECTIONS**) was a multidimensional household projection model, developed by van Imhoff and Keilman (Van Imhoff & Keilman, 1991), but capable of being used for a wide range of multidimensional demographic computations. It was used by several countries but is also no longer available.

ProFamy is a user-friendly software for projections of households and living arrangements (Wang et al., 2018).

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## Population Projections for the Design and Implementation of Population Policies

Are population policies improved by population projections? There is no definite answer, inasmuch as population policies are being influenced by much more than information about the size and composition of future populations. Some general evidence – transition to lower fertility, longer life

expectancy, urbanization, and aging – is certainly part of general awareness and part of the building blocks of population policies. But aside from that, temptations sometimes exist to ignore knowledge obtained from population projections. A popular example is planning for schooling capacities. The (approximate) size of the youth cohort entering the public-school system may be known in advance by several years, but often insufficient action is implemented.

## Policy Options

Population projections offer plausible, but not necessarily accurate, future demographic trajectories. Prediction intervals or scenarios (variants) are an attempt to express that inherent uncertainty. Translating population projections into policies therefore necessarily operates under some degree of uncertainty. It also depends on the actual demographic settings in a country or group of countries. Overarching policy goals, such as mitigation of climate change, improving the ecological footprint, or utilizing national resources will also inform and shape policies. For example, according to the latest United Nations Inquiry among Governments on Population and Development (United Nations, 2018a, b), from 197 responding countries, 37 countries, all of them in the less developed world, reported policies to raise population growth (see Table 21.2).

## How Accurate Are Population Projections?

Demographers have for some time tried to assess the “correctness” of population projections, which is a challenge because of an inherently unknown future. One way to approach the issue is to analyze earlier projections with current figures and find the differences between projected and recorded/estimated projections. Such a track record may provide some information about the success of earlier projections (Keilman, 1998; Keyfitz, 1981, 1982).

The United Nations population projections have, from the beginning, used a very simple

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<sup>9</sup> See <https://webarchive.iiasa.ac.at/Research/POP/pub/software/pde/> (last updated 2000), accessed on July 9, 2020.

<sup>10</sup> European Free Trade Association (EFTA), currently comprising Iceland, Liechtenstein, Norway, and Switzerland.

**Table 21.2** Government views on policies on population growth by number of countries and policies

Policy on growth	Number of countries
Lower	75
Maintain	40
Raise	37
No intervention	28
No official policy	17
Total	197

Source: United Nations (2018b), and author's calculations

**Table 21.3** Comparison between prediction intervals and scenario variants

Category	2050	2100	2050	2100
	Number of countries		Percentage of world population	
High and Low variants are outside the 95% bounds	43	49	29%	22%
High or Low variant is outside a 95% bound	51	71	13%	16%
High and Low variant are within the 95% bound	107	81	58%	62%
Total	201	201	100%	100%

Source: United Nations (2019b) and author's calculations

device to illustrate the inherent uncertainty of the projections. For most of its Revisions, the UN Population Division defined a High and Low variant that, after a short transition period after the base year, added or subtracted 0.5 children to the Medium fertility variant. In other words, there is a range of one child presumed to cover uncertainty. Despite their shortcomings, the High/Low variants are still being published as they are easy to communicate (as well as for backward comparability).

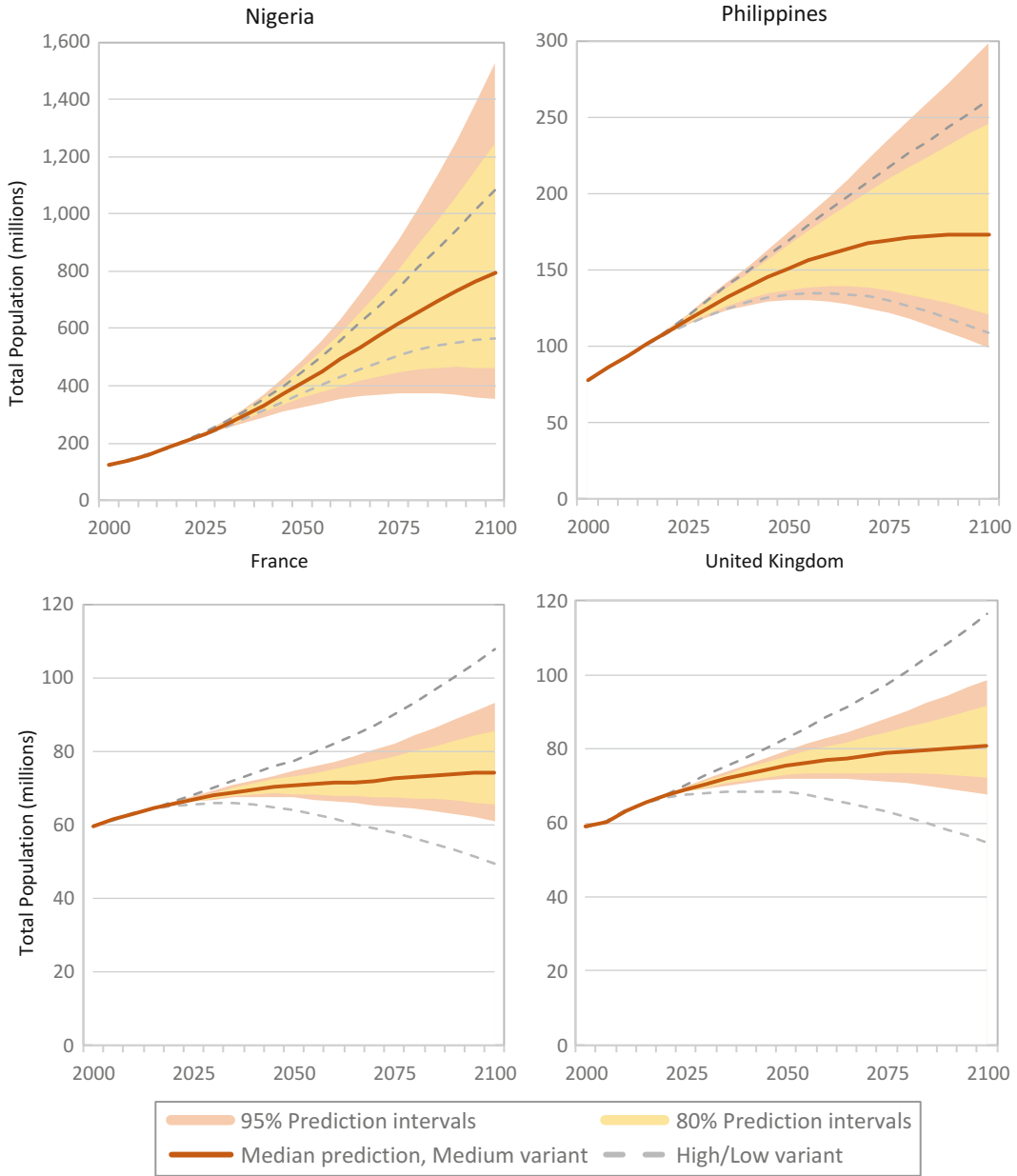
With the advent of probabilistic population projections at the global level, the accuracy of the projections can now be better evaluated. The latest Revision of the World Population Prospects states that “with a probability of 95 per cent, the size of the global population will stand between 8.5 and 8.6 billion in 2030, between 9.4 and 10.1 billion in 2050, and between 9.4 and 12.7 billion in 2100” (United Nations, 2019a: 1). The demographic component contributing the most to this uncertainty is the uncertainty about the future number of births (United Nations, 2019a: 2).

With the introduction of probabilistic projection methods, it is possible to carry out a comparison between the new approach of calculating prediction intervals and the High/Low variants. Table 21.3 shows that for 43 countries in 2050

and for 49 countries in 2100, the High and Low variant projections fall outside of the 95% prediction interval. These are mostly countries that in 2015–2020 had already low or very low fertility, so had less variability of fertility and this made the prediction intervals of population size narrower. For a relatively large number of countries (107 in 2050 and 81 in 2100), most of which exhibited medium to high fertility during 2015–2020, and so had more uncertainty regarding future fertility, the traditional High and Low variants fall within the 95% prediction intervals. Prediction intervals are widened as compared to High and Low variants for 58% (2050) and 62% (2100) of the world population.

Figure 21.1 also shows that less developed countries (shown here are Nigeria and the Philippines) exhibit very large prediction intervals, indicating a larger uncertainty than the traditional projections variants have suggested. More developed countries (shown here are France and United Kingdom) display smaller prediction intervals, significantly smaller than the older High/Low projection variants.

Translated into policy terms that means more change – in both directions – is possible for the less developed countries than was suggested by the traditional High/Low variant approach.



**Fig. 21.1** Comparison of probabilistic projections and high/low scenarios, select countries. (Source: United Nations, 2019b)

Reducing excessive population growth is a goal that the international community has tried to achieve. The larger predictive intervals are therefore a call for urgent action, and a promise that more progress than the Medium variant might be possible.

### Projections as a Guide for Policy Formulation and Evaluation

The Sustainable Development Goals (SDGs) set forth in 2015 by the General Assembly (United Nations General Assembly, 2015), and

**Table 21.4** Number of countries by level of under-five mortality rate, 2015, 2020, and 2030

Range	U5MR level	Number of countries		
		2015	2020	2030
Low	<=25	154	163	178
Intermediate	>25 <=50	30	37	32
High	>50	51	35	25
Total		235	235	235

Source: United Nations (2019b) and author's calculations

the subsequently introduced Global Indicator Framework for the Sustainable Development Goals (United Nations, 2017a), include several goals and targets, translated into 231 concrete indicators. Several indicators may be reviewed by using population projections for up-to-date evaluation and formulation of related policies.

One important area addressed is Goal 3 “Health and Well Being”, a health-related goal. As an internationally monitored public health indicator, the under-five mortality rate (U5MR) reflects the access of children and communities to basic health interventions such as vaccination, medical treatment of infectious diseases, and adequate nutrition. U5MR is indeed a good proxy for development. In Goal 3.2, the SDGs called for ending preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce the U5MR to at least as low as 25 per 1000 live births (United Nations, 2017a: 3).

Table 21.4 summarizes UN estimates and projections for this health indicator. In 2015 – at the time the SDGs were decided – 154 countries, i.e., two out of three, were already at or below the target set for 2030. Among the 81 countries with higher U5MR, 30 had already achieved an intermediate level of child mortality, while 51 still experienced rather high levels of U5MR. By 2030, the current projection expects that 57 countries, or about one out of four, will not achieve this important goal of the SDGs. The countries farthest away from the SDGs goal of an U5MR of 25 are Chad, Somalia, and Central African Republic, all still expected to be above 90 children's deaths under the age of five per 1000 live births. It is important to realize that the projections assume continued progress

against mortality for all countries. The countries projected as not reaching the target by 2030 will need extra efforts to attain this goal.

Many other SDGs-related indicators could realistically be monitored by population projections, either by national or international projections. A notable area for which population projections may be suitable is monitoring and managing the HIV/AIDS pandemic, as set out in Goal 3<sup>11</sup> and indicator 3.3.1.<sup>12</sup> Tasked with this topic is the UNAIDS Reference Group on Estimates, Modelling and Projections Group,<sup>13</sup> using a set of software tools (including Spectrum, mentioned above).

It may be noted that, due to the dearth of data, past estimates and projections of the HIV/AIDS pandemic turned out to be not very accurate, often overstating the impact on population growth and the number of deaths. Nevertheless, without the daring attempts to collect and evaluate evidence, and their translation into meaningful figures and trends, it would have been much harder to muster the resources, develop medication, and promote awareness to combat the epidemic.

Another area for utilizing projections is the review of education-related goals and targets. Here, the world population projections by Lutz et al. (2014) and by the IHME (Vollset et al., 2020) that include the human capital dimension seem especially promising.

<sup>11</sup> “By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.”

<sup>12</sup> Number of new HIV infections per 1000 uninfected population, by sex, age, and key populations.

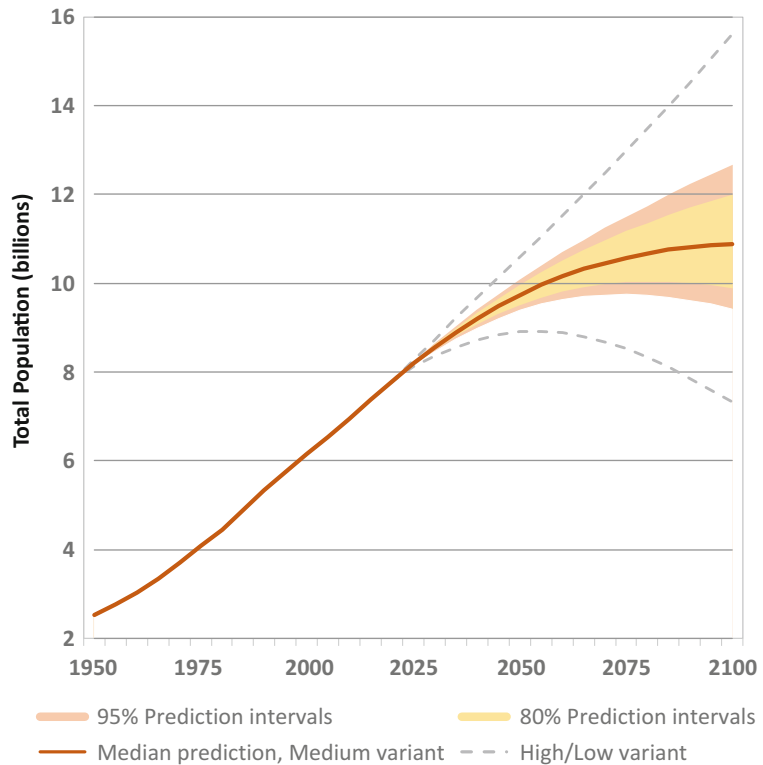
<sup>13</sup> See <https://www.epidem.org/>

Apart from the international goals of the SDGs, population projections in general have established themselves as a useful tool for the monitoring and evaluation of various policies. The 2018 aging report by the European Commission, for example, shows that the fiscal costs linked to pensions, healthcare, and long-term care are expected to rise over the coming decades, because Europe’s population continues to age significantly (European Commission, 2018a). Because most of the future old age population is already born, population projections of that segment of the population are very accurate and an exceptionally useful tool to investigate the consequences of aging populations. Clearly, there is a consensus that population projections are an indispensable part of preparing for achieving the SDGs, and to improving the lives of the population. It also obvious that population projections are often “silently” used in the denominator for calculating the indicators when

formulating policies and monitoring their implementation.

Looking at the aggregate level, it is clear that world population growth will continue at least until mid-century (see Fig. 21.2 and Table 21.5), with a chance to trail off afterward. This would be the ambitious future outcome for those seeking to stabilize global population, and which demands much greater efforts to reduce still-high fertility in many countries in the less developed world. A variant best described as guardedly optimistic is the Medium variant. Considering the positive achievements in family planning, empowerment of women, and improving health for all ages, and extrapolating it into future, world population growth would decelerate—from 1.29% in 2020, 0.49% in 2050, to 0.03% in 2100. As a result, global population could approach eleven billion people by 2100, and afterwards probably slowly decline. However, there is also the upper bound of the Medium variant 95% confidence interval,

**Fig. 21.2** World population 1950–2100. (Source: United Nations, 2019b)



**Table 21.5** Total world population 2020–2100

Variant (prediction interval)	Year			
	2020	2030	2050	2100
	Total world population (billions)			
Lower (95% PI)	7.8	8.5	9.4	9.4
Medium	7.8	8.5	9.7	10.9
Upper (95% PI)	7.8	8.6	10.1	12.8
	Percentage difference to medium			
Lower (95% PI)	–	–1.0%	–3.5%	–13.3%
Upper (95% PI)	–	1.0%	3.5%	16.4%

Source: United Nations (2019b) and author’s calculations

which indicates that somewhat higher fertility could propel the world population to almost thirteen billion people in 2100.

## Conclusion

Population projections normally assume “orderly progress” for the entire projection horizon. It is assumed that no extraordinary calamities – wars, famines, deadly pandemics, or economic collapses – will occur during the projection period. This is a reasonable and practical hypothesis. But it is not backed by past experiences. Even in the first two decades of the twenty-first century, there were wars (Libya, Syria, Ukraine), financial crisis (Lehman Brothers collapse), epidemics (Ebola), and pandemics (HIV/AIDS, and currently COVID-19), and sudden huge refugee movements that challenge the notion of “orderly progress”. Placing population projections into a probabilistic framework is a partial solution to the problem, as the predictive uncertainty is informed by the past, including extraordinary fluctuations. This statistical methodology cannot, however, predict the adverse events directly, neither their timing nor the kind of event. For a discussion of how probabilistic population projections may be used for better decision making, see Bijak et al., 2015.

The lesson for population policies or, more generally, development policies, it to be cognizant of current trends, projected pathways, the possibility of unforeseen changes, and their implied consequences. Population projections, in many instances, were remarkably successful, especially for the short- and medium-term, and

have proven to be of great utility for the formulation and implementation of population policies.

For population-related policies, this means taking into consideration the current demographic settings and their evolution in the past, and requires us to observe inherent trends like population momentum as a limiting force, and to consider the many different outcomes of global, regional, and national population processes. Thus, population policies are formulated under condition of uncertainty that increase over time. For example, if the latest UN projections imply a 27% probability that the world population growth could stabilize or even begin to decline sometime before 2100 (United Nations, 2019b:1), there is also the probability that the world population could continue to grow beyond the end of twenty-first century. This uncertainty is also exhibited between the different producers mentioned. Taking only the Medium variants (or Median scenarios), the UN projects a world population of 10.87 billion people in 2100, the Wittgenstein Centre projects 9.28 billion inhabitants or 15% less than the UN, and the IHME team comes out even lower with 8.69 billion people—about 20% below the UN.

It is population policy, or in a broader context, development policies that will determine whether the world realizes the more sustainable outcome. To follow real-world developments and to be effective, population projections not only need better data (a commonplace) but should also be revised regularly. And policymakers need to be aware of the uncertainty and the ranges of various projections when using them to design and implement their interventions.

## References

- Ahlburg, D. A. (2001). Population forecasting. In S. J. Armstrong (Ed.), *Principles of forecasting. International series in operations research & management science* (Vol. 30, pp. 557–575). Springer. [https://doi.org/10.1007/978-0-306-47630-3\\_25](https://doi.org/10.1007/978-0-306-47630-3_25)
- Arriaga, E. E., Johnson, P. D., & Jamison, E. (1994a). *Population analysis with microcomputers. Volume I: Presentation of techniques*. U.S. Census Bureau.
- Arriaga, E. E., Johnson, P. D., & Jamison, E. (1994b). *Population analysis with microcomputers. Volume II: Software and documentation*. U.S. Census Bureau.
- Bamgbose, J. A. (2009). Falsification of population census data in a heterogeneous Nigerian state: The fourth republic example. *African Journal of Political Science and International Relations*, 3(8), 311–319.
- Bernstein, S., Hardee, K., May, J. F., & Haslegrave, M. (this volume). Chapter 15: Population institutions and international population conferences. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Bijak, J., Alberts, I., Alho, J., Bryant, J., Buettner, T., Falkingham, J., ... Smith, P. W. F. (2015). Probabilistic population forecasts for informed decision making. Letter to the editor. *Journal of Official Statistics*, 31(4), 537–544. <https://doi.org/10.1515/jos-2015-0033>
- Blue, L., & Espenshade, T. J. (2011). Population momentum across the demographic transition. *Population and Development Review*, 37(4), 721–747.
- Buettner, T. (2015). Urban estimates and projections at the United Nations: The strengths, weaknesses, and underpinnings of the world urbanization prospects. *Spatial Demography*, 3(2), 91–108. <https://doi.org/10.1007/s40980-015-0004-2>
- Buettner, T. (2021). World population prospects – A long view. *Economics and Statistics*, 520–521, 9–27. <https://doi.org/10.24187/ecostat.2020.520d.2030>
- Burch, T. K. (2018). *Model-based demography*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-65433-1>
- Caselli, G., Vallin, J., & Wunsch, G. (Eds.). (2006). *Demography: Analysis and synthesis. A treatise in population studies* (Vol. IV. Chapters 72–78). Elsevier Academic Press.
- Craveiro, D., de Oliveira, I. T., Gomes, M. C. S., Malheiros, J., Moreira, M. J. G., & Peixoto, J. (2019). Back to replacement migration: A new European perspective applying the prospective-age concept. *Demographic Research*, 40, 1323–1344. <https://doi.org/10.4054/DemRes.2019.40.45>
- Economic Commission for Latin America and the Caribbean. (2020). *Demographic observatory, 2019: Population projections*. ECLAC. <http://hdl.handle.net/11362/45198>
- European Commission. (2018a). *The 2018 ageing report. Economic & budgetary projections for the 28 EU member states (2016–2070)*. LU: Publications Office of the European Union. <https://doi.org/10.2765/615631>
- European Commission. (2018b). *Demographic and human capital scenarios for the 21st century: 2018 assessment for 201 countries* (W. Lutz, A. Goujon, S. KC, M. Stonawski, & N. Stilianakis, Eds.). Publications Office of the European Union. <https://doi.org/10.2760/41776>
- EUROSTAT. (2020a). *EUROPOP2019 – Population projections at the national level*. European Commission. See [https://ec.europa.eu/eurostat/data/database?node\\_code=proj](https://ec.europa.eu/eurostat/data/database?node_code=proj). Accessed 1 Feb 2021.
- EUROSTAT. (2020b). *Methodology of the Eurostat population projections 2019-based* (EUROPOP2019. Technical Note ESTAT/F-2/GL). European Commission.
- Fosdick, B. K., & Raftery, A. (2014). Regional probabilistic fertility forecasting by modeling between-country correlations. *Demographic Research*, 30, 1011–1034. <https://doi.org/10.4054/DemRes.2014.30.35>
- George, M. V., Smith, S. K., Swanson, D. A., & Tayman, J. (2004). Population projections. In J. S. Siegel & D. A. Swanson (Eds.), *The methods and materials of demography* (2nd ed., pp. 561–602). Elsevier Academic Press.
- Godwin, J., & Raftery, A. (2017). Bayesian projection of life expectancy accounting for the HIV/AIDS epidemic. *Demographic Research*, 37, 1549–1610. <https://doi.org/10.4054/DemRes.2017.37.48>
- Hill, K. (1990). *PROJ3S – A computer program for population projections: Diskettes and reference guide*. The World Bank. World Bank Group.
- KC, S., Potancokova, M., Bauer, R., Goujon, A., & Striessnig, E. (2013). *Summary of data, assumptions and methods for new Wittgenstein Centre for Demography and Global Human Capital (WIC) population projections by age, sex and level of education for 195 countries to 2100* (Interim reports no. IR-13-018). International Institute for Applied Systems Analysis (IIASA).
- Keilman, N. (1998). How accurate are the United Nations world population projections? *Population and Development Review*, 24(1), 15–41. <https://doi.org/10.2307/2808049>
- Keyfitz, N. (1981). The limits of population forecasting. *Population and Development Review*, 7(4), 579–593. <https://doi.org/10.2307/1972799>
- Keyfitz, N. (1982). Can knowledge improve forecasts? *Population and Development Review*, 8(4), 729–751. <https://doi.org/10.2307/1972470>
- Keyfitz, N. (1984). Population projections as an aid to the formulation and implementation of population policies. In *Population projections: Methodology of the United Nations* (Population studies no. 83) (pp. 17–20). Department of Economic and Social Affairs, Population Division.
- Lutz, W. (2013). The scientific base of the new Wittgenstein Centre Global Human capital Projections: Defining assumptions through an evaluation of expert views on future fertility, mortality and migration. In *Joint Eurostat/UNECE Work Session on Demographic Projections* organised in cooperation with Istat (29–31 October 2013, Rome, Italy). (Pp. 1–19).

- Lutz, W., & Scherbov, S. (2002). *Can immigration compensate for Europe's low fertility?* (IIASA interim report no. IR-02-052). International Institute for Applied Systems Analysis (IIASA).
- Lutz, W., Butz, W. P., & KC, S. (Eds.). (2014). *World population and human capital in the twenty-first century*. Oxford University Press.
- O'Neill, B. C., Balk, D., Brickman, M., & Ezra, M. (2001). A guide to global population projections. *Demographic Research*, 4, 203–288. <https://doi.org/10.4054/DemRes.2001.4.8>
- O'Neill, B. C., Krieglger, E., Ebi, K. L., Kemp-Benedict, E., Riahi, K., Rothman, D. S., ... Solecki, W. (2017). The roads ahead: Narratives for shared socioeconomic pathways describing world futures in the 21st century. *Global Environmental Change*, 42, 169–180. <https://doi.org/10.1016/j.gloenvcha.2015.01.004>
- Okolo, A. (1999). The Nigerian Census: Problems and Prospects. *The American Statistician*, 53(4), 321–325. <https://doi.org/10.1080/00031305.1999.10474483>
- Raftery, A., Chunn, J. L., Gerland, P., & Ševčíková, H. (2013). Bayesian probabilistic projections of life expectancy for all countries. *Demography*, 50(3), 777–801. <https://doi.org/10.1007/s13524-012-0193-x>
- Raftery, A., Alkema, L., & Gerland, P. (2014a). Bayesian population projections for the United Nations. *Statistical Science*, 29(1), 58–68. <https://doi.org/10.1214/13-STS419>
- Raftery, A., Lalic, N., Gerland, P., Li, N., & Heilig, G. (2014b). Joint probabilistic projection of female and male life expectancy. *Demographic Research*, 30, 795–822. <https://doi.org/10.4054/DemRes.2014.30.27>
- Riahi, K., van Vuuren, D. P., Krieglger, E., Edmonds, J., O'Neill, B. C., Fujimori, S., ... Tavoni, M. (2017). The Shared Socioeconomic Pathways and their energy, land use, and greenhouse gas emissions implications: An overview. *Global Environmental Change*, 42, 153–168. <https://doi.org/10.1016/j.gloenvcha.2016.05.009>
- Roth, G. A., Abate, D., Abate, K. H., Abay, S. M., Abbafati, C., Abbasi, N., ... Murray, C. J. L. (2018). Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: A systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*, 392(10159), 1736–1788. [https://doi.org/10.1016/S0140-6736\(18\)32203-7](https://doi.org/10.1016/S0140-6736(18)32203-7)
- Sander, N., Abel, G., & Riosmena, F. (2014). The future of international migration. In W. Lutz, W. P. Butz, & S. KC (Eds.), *World population and human capital in the twenty-first century* (pp. 333–396). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198703167.003.0007>
- Ševčíková, H., Raftery, A., & Buettner, T. (2020). *Pack- age 'bayesPop'*. Probabilistic population projections (R package version 8.1-3). United Nations, Department of Economic and Social Affairs, Population Division. See <https://cran.r-project.org/web/packages/bayesPop/index.html>
- Shorter, F. C., Sendek, R., & Bayoumy, Y. (1995). *Computational methods for population projections: With particular reference to development planning*. The Population Council.
- Smith, S. K. (1997). Further thoughts on simplicity and complexity in population projection models. *International Journal of Forecasting*, 13(4), 557–565. [https://doi.org/10.1016/S0169-2070\(97\)00029-0](https://doi.org/10.1016/S0169-2070(97)00029-0)
- Stover, J. (2020). *Spectrum manual. Spectrum system of policy models*. Avenir Health.
- U.S. Census Bureau. (2013). *The Rural-Urban Projection (RUP) program. A user's guide*. U.S. Census Bureau.
- U.S. Census Bureau. (2019a). *DAPPS: A new tool for demographic analysis and population projections*. U.S. Census Bureau. See <https://www.census.gov/data/software/dapps.html>. Accessed 5 Nov 2021.
- U.S. Census Bureau. (2019b). *International Data Base (IDB)*. U.S. Census Bureau. See <https://www.census.gov/programs-surveys/international-programs/about/idb.html>. Accessed 9 July 2020.
- United Nations. (1956). *Manual III: Methods for population projections by sex and age* (Manuals on methods of estimating population). Department of Economic and Social Affairs, Population Division.
- United Nations. (1973). *World population prospects as assessed in 1968* (Populations studies no. 53). Department of Economic and Social Affairs, Population Division.
- United Nations. (1989). *The United Nations population projection computer program. A user's manual*. Department of Economic and Social Affairs, Population Division.
- United Nations. (1995). *World population prospects: The 1994 revision*. Department of Economic and Social Affairs, Population Division.
- United Nations. (1998). *World population prospects: The 1996 revision*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2001). *Replacement migrations: Is it a solution to declining and ageing populations?* Department of Economic and Social Affairs.
- United Nations. (2006). *World population prospects: The 2004 revision, volume III: Analytical report*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2013). *Mortpak for windows (version 4.3)*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2017a). *Global indicator framework for the sustainable development goals and targets of the 2030 agenda for sustainable development*. Department of Economic and Social Affairs, Statistics Division.
- United Nations. (2017b). *The impact of population momentum on future population growth* (Population facts, no. 2017/4). Department of Economic and Social Affairs, Population Division.



- United Nations. (2018a). *World population policies 2015. World population policies 2015* (ST/ESA/SER.A/374). Department of Economic and Social Affairs, Population Division. 10.18356/4ce47e88-en.
- United Nations. (2018b). *World population policies datasets 2015*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2019a). *How certain are the United Nations global population projections?* (Population facts). Department of Economic and Social Affairs, Population Division.
- United Nations. (2019b). *World population prospects 2019: Data booklet*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2019c). *World population prospects 2019: Highlights*. Department of Economic and Social Affairs, Population Division.
- United Nations. (2019d). *World population prospects 2019: Methodology of the United Nations population estimates and projections*. Department of Economic and Social Affairs, Population Division.
- United Nations Economic Commission for Europe & Conference of European Statisticians. (2014). *In-depth review of population projections. Prepared by the Office for National Statistics, United Kingdom and Statistics Canada*. United Nations Economic Commission for Europe.
- United Nations General Assembly. (2015). *Transforming our world: The 2030 agenda for sustainable development*. United Nations General Assembly.
- United Nations Population Division. (2020). *Package "wpp2019": World population prospects 2019* (R package version 1.0-1). United Nations Department for Economic and Social Affairs, Population Division.
- United Nations Population Fund. (2004). *Programme of action of the international conference on population and development, Cairo 1994*. UNFPA.
- United Nations Population Fund. (2014). *International conference on population and development programme of action* (Twentieth Anniversary ed.). UNFPA.
- Van Imhoff, E., & Keilman, N. (1991). *LIPRO 2.0: An application of a dynamic demographic projection model to household structure in the Netherlands*. Swets & Zeitlinger.
- Vollset, S. E., Goren, E., Yuan, C.-W., Cao, J., Smith, A. E., Hsiao, T., . . . Murray, C. J. L. (2020). Fertility, mortality, migration, and population scenarios for 195 countries and territories from 2017 to 2100: A forecasting analysis for the Global Burden of Disease Study. *The Lancet*, 396(10258), 1285–1306. [https://doi.org/10.1016/S0140-6736\(20\)30677-2](https://doi.org/10.1016/S0140-6736(20)30677-2)
- Wang, Z., Zeng, Y., Gu, D., & Shi, W. (2018). *ProFamy user's guide (version 2.1)*. ProFamy.
- Wattelar, C. (2006). Chapter 72: Demographic projections: History of methods and current methodology. In G. Caselli, J. Vallin, & G. Wunsch (Eds.), *Demography: Analysis and synthesis. A treatise in population studies* (Vol. III, pp. 149–160). Elsevier Academic Press.
- Wittgenstein Centre for Demography and Global Human Capital. (2018). *Wittgenstein Centre Data Explorer Version 2.0*. Wittgenstein Centre for Demography and Global Human Capital. See <http://www.wittgensteincentre.org/dataexplorer>. Accessed 2 July 2020.
- World Bank. (2020). *Population estimates and projections*. World Bank Group. See <https://datacatalog.worldbank.org/dataset/population-estimates-and-projections>. Accessed 1 July 2020.



R. Scott Moreland

## Introduction to Models

In this chapter, we discuss models that have been and are currently being used in population-related work. Models are mathematical representations of relationships between variables. They can be simple, consisting of a single dependent variable and one or several independent or explanatory variables, or they can be complex involving several dependent variables and several independent variables. We will encounter both types of models in this chapter.

Models are used in the social sciences essentially as “laboratories” to understand the often complex and indirect relationships between phenomena. Typically, a model tries to answer the question, “If A changes by a certain amount, what is the impact on B?” For example, if girl’s education levels increase, what is the impact on their fertility? Since it is often difficult or impractical to isolate and directly observe the impacts of changes in one variable on another in the social sciences, including demography, a model offers the chance to estimate the impact. Of course, controlled experiments, such as a randomized two-arm trial, as is often used in evaluation research, is always preferred, but budgetary and

time constraints may make such an approach impractical.

Models consist of specified relationships among variables and indicators for those variables that allow us to measure the outputs and the inputs of the model. Output variables may constitute a goal or policy objective, such as the level of a Sustainable Development Goal or the population growth rate. Input variables are those that influence the outputs. In a complex model with several sub-models, the output of one module can be an input in another module. Input variables can generally be classified in two categories: those that are external to the system being modeled and outside of the manageable control of decision-makers such as the weather or macroeconomic conditions, and those that are controllable or what are often called “policy variables”. A policy variable could be the price of a commodity, level of service quality such as the training of nurse-midwives, or the exchange rate of a country’s currency.

Models are used to simulate the effects of changes in one variable or several variables on other variables in the model. Depending on the type of model, simulations can be comparative static or can be dynamic. In a comparative static model, there is no time dimension whereas in a dynamic model the impacts are modeled over a time period that can be many years. Typically, demographic models are dynamic.

It is useful to distinguish three broad categories of models, according to their purpose:

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1. Research models: answer specific questions;
2. Predictive models: predict future events or indicators; and
3. Policy models: assist decision-makers in understanding a problem and choosing options.

*Research models* answer specific questions about the relationships between variables of interest. For example, does an increase in contraceptive access lead to an uptake of family planning by women? Or, is age at first marriage influenced by socioeconomic status? Research models are useful in framing broad program or policy approaches.

*Predictive models* are used to predict future events or indicators. For example, meteorologists use models to predict the weather and the path of large storms. Economists use models to forecast economic indicators. Predictive models can be useful for planning where it is important to estimate the future values of indicators.

*Policy models* assist decision-makers in understanding a problem and selecting options for making a policy choice. For example, policy models have been used to show the potential impact of demographic change on the economy and policy options to change those outcomes.

Models can be deterministic or stochastic. In a deterministic model, there is only one set of outputs for each set of inputs, so the results are said to be determined. A stochastic model returns a set of results with a probability distribution around median or mean estimates for the outputs. The stochastic nature of the model can emanate from the model's equations having a stochastic term in them that generates the distribution. Typically, in a stochastic model one reports the median result with an upper and lower bound set at the 95 percent confidence interval.

Related to the above distinction are two types of models: *macro simulation models* and *micro-simulation models*. In macro models, the variables measure something at the level of the entire society or population, i.e., the average age that women marry in a given population. A

micro-simulation model focuses on the interaction of individual *units* such as people. Each unit is modeled autonomously in terms of its behavior and the behavior of each person varies depending on randomized parameters intended to represent individual preferences and tendencies. For example, in a public health model, individuals could vary in their preference for a health behavior, as well as in personal characteristics that contribute to their choices (age, education, sex, etc.).

The process to develop a model involves several steps depending on the type of model and its eventual use, as follows:

1. *Problem definition.* In this step, the modelers define the issue or problem much the same as with any research question. For example, one might want to know what is the impact of a change in the economic situation on the rate of growth of the population.
2. *Initial model design.* Once the problem is defined, the model design process begins, and consists of several steps. First, the model developers may sketch out a flow chart of what the model may look like. This would include selection of indicators that will be modeled (dependent variables) and the indicators or factors that influence each of these. The initial design may consist of a series of hypotheses or "theories of change" and often is influenced by the research literature or even other models.
3. *Model estimation.* The model estimation stage consists of estimating the relevant parameters that define how one variable may influence another. This can be a research phase in which relevant data are collected and statistical tests are made. Depending on the results of this testing, the model may be modified if the tests reveal relationships that are not statistically significant. In some models, all the relationships and parameters are estimated as part of the model development stage; in others, relationships from other models or statistical studies are borrowed and included.
4. *Programming.* After the model is designed with parameters and estimates of relationships confirmed, the model is programmed. There are

many choices of modeling platforms, including Microsoft Excel, the Spectrum System, programming languages like R, and others. Recently, modelers have started to design models that are interactive and that can be accessed and run directly over the Internet.

5. *Validation/testing.* Models are in principle validated or tested by comparing their results against actual data. This can sometimes be done by seeing if the model can recreate an historical time-series for data other than data that the model was estimated with. However, in the case of models that are designed to simulate policy interventions for which there is little or no prior experience, validation against data may not be possible. In this case, a “reasonableness” criterion may be used in which the size of the impacts is measured *a priori* against what the researchers deem to be a reasonable impact.
6. *Use of the model.* The final stage of course is using the model and how the model is used will depend on the type of model. In most cases, however, simulations are run to estimate the impacts of changes in the inputs that are in the manageable control of decision-makers.

Models have their limitations and should be used with caution. First, the variables in any model will be represented by indicators used to measure the desired output or input. But sometimes these indicators may be proxies for what is desired because there are no data for the actual output or input or there maybe several ways to measure a variable. This can often be the case for a policy input. For example, if one wants to measure the level of quality of a health service, indicators may range from the level of training of healthcare workers to some indicator regarding the healthcare worker-client interaction. But if the model’s input indicator does not correspond to what is in the manageable control of decision-makers, it can limit the usefulness of the model.

Another limitation may be the assumption that the underlying statistical model or the model’s parameters are appropriate to the application. Models tend to be “one size fits all” in terms of model structure, with the major differences

between applications being the initial levels of the inputs and outputs. But if the model’s parameters are taken from another country, or estimated based on international cross-section data, the implicit assumption is that these data and parameters are applicable to the case at hand.

Finally, it should be remembered that all models are based on abstractions of reality and simplifications of reality. As such, they represent approximations of the real world. Consequently, even though any computer model can produce values of a model’s output variables with an apparent precision with ten decimal points, ultimately, the interpretation of the model’s results may be *qualitative*, not *quantitative*: did the output variable go up or down as a result of the changes in the inputs, or did it go up or down a lot or a little? This is especially the case for research and policy models.

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## Population Models

Population models can be classified into the three categories outlined above. Population *research models* typically examine the nature of hypothesized relationships between demographic variables and other socioeconomic variables. For example, models have been developed to estimate the impact of changes in the age structure of the population on savings and investment.

Population *predictive models* include those that are designed to estimate the quantitative impact of changes in a demographic variable on another variable or vice-versa. For example, a model that estimates the impact of marriage on total fertility falls in this category.

Population *policy models* are used to help guide policy decisions. Often, population policy models are used to support the advocacy for a particular program strategy or policy, such as increasing family planning investments or changes in the age of marriage. Such models are also used to guide the development of population policies and supporting strategic plans.

In the following sections, we will introduce various models that involve population or

demographic variables, either as dependent variables or as inputs or factors that may influence other variables. In each case, we will present one or two models as examples even though there maybe other models. The discussion will present an introductory overview of the models and is not meant to be comprehensive.

## Modeling Fertility

**The Bongaarts Model** Of all the components of population growth, perhaps the one that has been modeled the most is fertility. One of the most used and popular is the “proximate determinants of fertility” model proposed by John Bongaarts (1978).

According to Bongaarts, the proximate determinants of fertility are “*the biological and behavioral factors through which the background determinants (social, economic, and environmental variables) affect fertility*” (Bongaarts, 2015: 536). Each of the proximate determinants have a direct impact on fertility. So, if a proximate determinant, such as postpartum amenorrhea changes, the level of fertility will change, assuming the other proximate determinants remain constant. In short, the proximate determinants of fertility determine conception and a pregnancy resulting in a live birth.

The Bongaarts model is represented by a multiplicative equation where total fertility is determined by indicators for each of the proximate determinants, which are measured as inhibitors of total fecundity:

$$TFR_t = C_{m_t} \cdot C_{i_t} \cdot C_{a_t} \cdot C_{s_t} \cdot C_{c_t} \cdot TF$$

Where:

- $TFR_t$  is the total fertility rate at time  $t$
- $C_{m_t}$  is an index of marriage at time  $t$
- $C_{i_t}$  is an index of insusceptibility (linked to breastfeeding and postpartum abstinence) at time  $t$
- $C_{a_t}$  is an index of induced abortion at time  $t$
- $C_{s_t}$  is an index of sterility at time  $t$
- $C_{c_t}$  is an index of contraception at time  $t$
- $TF$  is the total fecundity at time  $t$ .

In the model, the proximate determinants indices are defined to reduce TF. TF is the total fecundity and is the number of children a woman would have if all the other proximate determinants were at their minimum levels. This variable is not likely to change and is not a policy variable.  $TF$  typically takes a value of around 15.3 children but can vary between 13 and 17 from country to country, depending on the underlying level of sterility and frequency of intercourse.

Below in Table 22.1 and Fig. 22.1, we give a simple example of the effects of changing one proximate determinant (contraceptive use) on total fertility. In Scenario 1, the contraceptive prevalence rate (CPR) is 30 percent. In Scenario 2, all other proximate determinants remain the same except the CPR, which increases to 50 percent.

Figure 22.1 shows the impact on the  $TFR$  of each proximate determinant in terms of how much each determinant reduces the total fecundity. In this example, the total fecundity is 14.83 and we see that the effect of 65 percent of women married or in union is to reduce the number of births by 5.19. Similarly, we see that with a CPR of 30 percent, births are reduced by 1.79, but by 2.98 with a higher CPR of 50 percent. The result is that the  $TFR$  with Scenario 1 is 4.8 and with Scenario 2 is 3.6.

In 2015, Bongaarts published a paper in which a series of revisions to the model were made.<sup>1</sup> Most of these had to do with calculation methods and the type or nature of data used in estimating the values of the proximate determinants, but the basic structure of the model did not change.

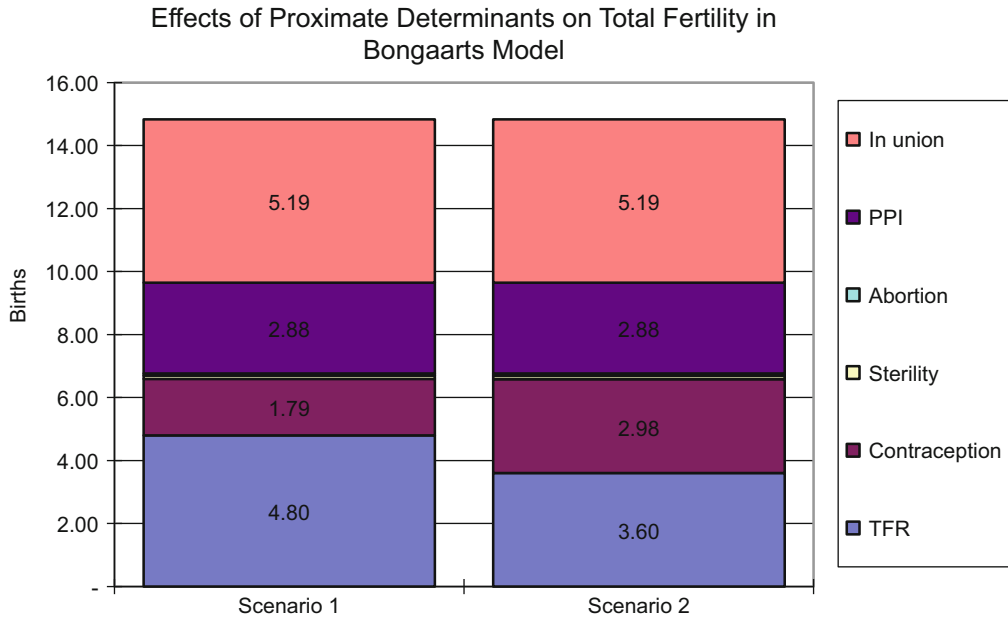
From a policy and program design strategy, the Bongaarts model offers useful insights into what “direct” factors influence fertility and the magnitude of those impacts. For example, we see in Fig. 22.1 that the proximate determinant for in union (or marriage) at a 65 percent level reduces births from a maximum of around 15 by more than five, whereas contraceptive use at 50 percent reduces total fecundity by around three. This would suggest that policies that aim to reduce fertility should include interventions to

<sup>1</sup> See <https://www.demographic-research.org/volumes/vol33/19/33-19.pdf>, accessed on January 5, 2022.

**Table 22.1** Scenario inputs for the Bongaarts model

	Determinants					
	% in union	PPI (months)	Abortion	Sterility	CPR	TF
<b>Scenario 1</b>	65.0%	10	0.1	4.0%	30.0%	14.83
<b>Scenario2</b>	65.0%	10	0.1	4.0%	50.0%	14.83

Source: Author’s calculations



**Fig. 22.1** Bongaarts model results. (Source: Author’s calculations)

affect the in-union factor, such as early marriage, in addition to family planning.

The biggest limitation of the Bongaarts model for policy and program planning is that it does not include the root causes of behavior that influence the proximate determinants. Each of the proximate determinants is ultimately influenced by behavior, whether it is the decision to get married, use contraceptives, terminate a pregnancy, or practice breast-feeding (which can affect postpartum infecundability or PPI). It is these behaviors that must be addressed by policies and programs if the ultimate objective is to influence fertility.

The Bongaarts model has been used to assess the historical impacts of each of the proximate determinants on fertility with a view to policy guidance. For example, an analysis in Bangladesh (Mahjabeen & Khan, 2011), was

used to estimate the relative impacts of trends in contraceptive use, marriage, and postpartum insusceptibility on fertility. Also, as we will see in the next sections, the model has been included in other models such as the FamPlan and DemDiv models.

**FamPlan** The *FamPlan* model takes the Bongaarts model a few steps further. The model has a long history dating back to a Target-Setting Model developed jointly by The Population Council and The Futures Group (Bongaarts & Stover, 1986). That model estimated the number of family planning users, new acceptors, and commodities required by method and source to achieve a total fertility rate (TFR) goal, given estimates of changes in the other proximate determinants of fertility. Subsequently in 1989,

the Research Triangle Institute (now RTI International) developed the first version of a model they called *FamPlan*. *FamPlan* projected the numbers of users and acceptors required to meet a fertility or contraceptive prevalence goal, but the model could also be used to project the future implications of achieving a certain number of acceptors of different family planning methods (Spectrum Manual, see Avenir Health, n.d.: 178).

An updated and expanded version of *FamPlan* is one of the key modules of the Spectrum modeling system (Avenir Health, n.d.). In its current variation, it is a complex and sophisticated model that not only projects the relations between fertility and its proximate determinants but extends the analysis to the potential impacts on child survival indicators such as the infant mortality rate (IMR), unintended pregnancies averted, abortions averted, and maternal deaths from pregnancies averted, to name a few.

*FamPlan* allows for different goals depending on the user's purpose. These include:

- Reaching a contraceptive prevalence goal;
- Reaching a CPR (modern methods) goal;
- Reaching a total fertility rate goal; and
- Reaching a goal for additional modern method users.

*FamPlan* is linked to the *DemProj* population projection program in Spectrum. *DemProj* projects women of reproductive age, which is important for *FamPlan* in projecting commodity needs and numbers of users. Also, the total fertility rate is coordinated between the two models.

Below in Tables 22.2 and 22.3, we show a hypothetical example based on Nigerian data for a 15-year projection based on meeting a CPR goal of 26.1 percent by 2030 with a base year CPR of 16 percent.

**Reality Check** *Reality Check* (RESPOND Project, 2014) is a model very similar to *FamPlan* and for that reason we will only mention it here briefly. *Reality Check* can help decision-makers to assess past CPR trends and test future scenarios. Like *FamPlan*, it uses demographic

data to project the number of contraceptive users over a specified time horizon. Based on that it calculates “the number of adopters (new users), commodity and supply needs and costs, service delivery capacity, and couple-years of protection (CYP) provided” (RESPOND Project, 2014: 3), and can ascertain the feasibility of particular goals. Unlike *FamPlan*, the demographic inputs are imported from an external source, such as the UN population projections, and there is no feedback on fertility.

Because of their detailed projections of key family planning-related variables, both the *FamPlan* and *Reality Check* models are useful for planning purposes. One of the most common uses is to estimate the service and resource requirements to meet a family planning goal. Goals can be stated in terms of contraceptive prevalence rate, number of new users, or, in the case of *FamPlan*, the fertility rate. Another use of family planning models is to explore alternative program strategies such as alternative method mixes or source mix (public vs. private sector providers). Furthermore, these models can also support advocacy messages by providing estimates of program requirements for implementation of a strategy, and the health impacts of achieving contraceptive goals.

## The UN Population Division's Fertility Modeling

The UN Population Division regularly provides population projections for all countries using a cohort-component method (United Nations, 2019a). As such, a key parameter is the fertility rate. To project fertility, the UN adopts a statistical model using a probabilistic framework (see Chapt. 21: *Population Projections and Population Policies* of this *Handbook* [Buettner, 2022]).

The UN bases country fertility projections on the demographic transition theory. This states that the evolution of fertility includes three broad phases: (i) a high-fertility, pre-transition phase (phase I); (ii) a declining fertility transition

**Table 22.2** FamPlan inputs for a hypothetical projection for Nigeria

	Summary of inputs			
	2015	2020	2025	2030
<b>Method attributes</b>				
Condoms/CYP	120	120	120	120
Female sterilization, average age	35	35	35	35
Injections/CYP	4	4	4	4
Implant duration of use (years)	3.8	3.8	3.8	3.8
Pill cycles/CYP	15	15	15	15
IUD duration of use (years)	4.6	4.6	4.6	4.6
<b>Effectiveness</b>				
Male condom	90	90	90	90
Female sterilization	100	100	100	100
Withdrawal	83	83	83	83
Periodic abstinence	81	81	81	81
Traditional (not specified)	82	82	82	82
3-month (Depo Provera)	100	100	100	100
Jadelle (5-year)	100	100	100	100
Standard daily regimen	94	94	94	94
Copper-T 380-A IUD (10-year)	99	99	99	99
<b>Method mix</b>				
Male condom	15.8	15.8	15.8	15.8
Female sterilization	2.3	2.3	2.3	2.3
Withdrawal	14	14	14	14
Periodic abstinence	12.9	12.9	12.9	12.9
Traditional (not specified)	6.2	6.2	6.2	6.2
3-month (Depo Provera)	24	24	24	24
Jadelle (5-year)	3	3	3	3
Standard daily regimen	13.5	13.5	13.5	13.5
Copper-T 380-A IUD (10-year)	8.3	8.3	8.3	8.3
<b>Proximate determinants</b>				
Percent of women 15–49 in union	71.5	71.5	71.5	71.5
Postpartum insusceptibility (months)	12.6	12.6	12.6	12.6
Unintended pregnancy terminated/induced abortion (%)	32	32	32	32
Sterility (%)	3	3	3	3
<b>Reaching a goal for contraceptive prevalence</b>				
Total fertility rate	5.69			
Prevalence (%)	26.1			

Source: Author's calculations

phase (phase II); and (iii) a low-fertility, post-transition phase (phase III).

The fertility model is divided into two processes. In the first process, the rate of the decline in total fertility is modeled as a function of its level, based on a double-logistic decline function. A Bayesian hierarchical model is used to estimate the parameters of a double-logistic function, which results in country-specific distributions for the parameters of the decline. The statistical

estimation uses information available at the country level and, at a second level, that of the global experience of all countries. The speed of decline in fertility of countries at the beginning of the fertility transition are mainly informed by the world's experience and the variability in trends experienced in other countries at similar levels of fertility in the past.

To create probabilistic projections for all countries in phase II of the demographic



**Table 22.3** FamPlan outputs for a hypothetical projection for Nigeria

	Summary of outputs			
	2015	2020	2025	2030
Average effectiveness	0.91	0.91	0.91	0.91
Contraceptive prevalence (CPR)	16	19.2	22.6	26.1
Total fertility rate	5.63	5.43	5.23	5.03
Women of reproductive age	40,458,044	46,700,888	53,891,159	61,921,833
Married women of reproductive age	28,927,502	33,391,135	38,532,179	44,274,111
Users	4,628,399	6,411,097	8,708,271	11,555,541
Acceptors	175,588	237,492	309,630	410,759
CYP	3,331,521	4,584,229	6,157,846	8,170,650
Births	6,966,511	7,664,090	8,468,623	9,382,691
Abortions	752,175	753,771	729,479	672,180
Pregnancies	8,872,052	9,675,703	10,572,531	11,557,322
Total fecundity	15.3	15.3	15.3	15.3
Commodities				
Male condom	87,620,616	121,369,007	164,857,001	218,758,906
3-month (Depo Provera)	4,450,572	6,164,776	8,373,690	11,111,565
Jadelle (5-year)	46,915	63,712	83,662	110,992
Standard daily regimen	9,387,923	13,003,822	17,663,250	23,438,454
Copper-T 380-A IUD (10-year)	111,512	150,963	197,135	261,525
Growth rates				
Male condom	7.33	6.68	5.6	5.6
Female sterilization	2.26	2.2	11.28	5.58
Withdrawal	7.33	6.68	5.6	5.6
Periodic abstinence	7.33	6.68	5.6	5.6
Traditional (not specified)	7.33	6.68	5.6	5.6
3-month (Depo Provera)	7.33	6.68	5.6	5.6
Jadelle (5-year)	4.86	4.54	8.21	5.59
Standard daily regimen	7.33	6.68	5.6	5.6
Copper-T 380-A IUD (10-year)	4.47	4.2	8.64	5.59

Source: Author's calculations

transition, the Bayesian hierarchical model was used to generate 186,000 double-logistic curves for all countries that have experienced a fertility decline. "This sample of double-logistic curves was then used to calculate 100,000 total fertility projections for all countries that had not reached phase III by 2015–2020. For each trajectory at any given time, the double-logistic function provides the expected decrement in total fertility in relation to its current level. A distortion term was added to the expected decrement to reflect the uncertainty inherent in the estimated model of fertility decline" (United Nations, 2019b: 16).

For countries that have reached phase III of the demographic transition, a second component of the projection procedure is implemented using a

time series model "to project further fertility change based on the assumption that fertility would approach and fluctuate around country-specific ultimate levels based on a Bayesian hierarchical model, in the long run" (United Nations, 2019b: 16; see also Raftery et al., 2014).

The modeling process of the UN is therefore based on fitting curves statistically to historical data and using the models to project forward. Several projection variants are available, (1) medium-fertility assumption; (2) high-fertility assumption; (3) low-fertility assumption; (4) constant-fertility assumption; and (5) instant-replacement assumption. The High and Low fertility variants consist of the Medium variant, plus or minus 0.5 child.

The primary use of the UN's fertility modeling is to provide a data-base of population projections for the countries of the world. These projections are valuable to decision-makers or researchers who do not have a way of preparing their own population projections. A limitation is that, unlike the *Bongaarts* and *FamPlan* models, the UN fertility models do not allow for any kind of policy, program, or socioeconomic inputs that could influence fertility. These factors are essentially implicit in the historical and statistical approach.

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## Population and Development Models

Another area in demography that has also experienced a large amount of modeling has been in linking population to various levels of socioeconomic development. These models fall under the category of research models and policy models because they have been used to justify policy interventions around demographic indicators, especially the growth rate of population or the total fertility rate.

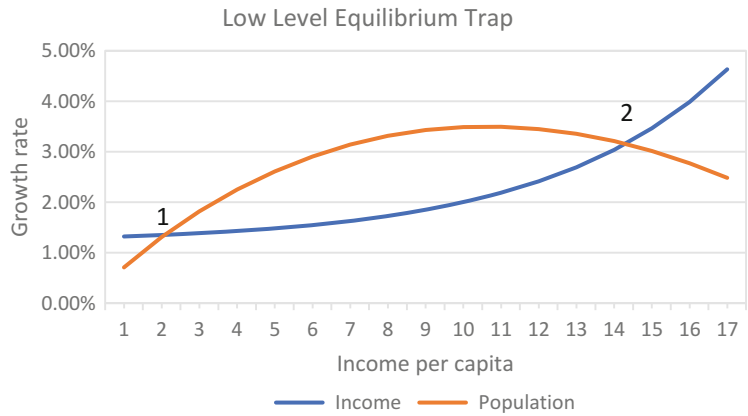
### Malthus and Neo-Malthusian Models

Perhaps the earliest and most well-known model is that developed by Thomas Robert Malthus. Malthus postulated in his 1798 and 1807 writings, *An Essay on the Principle of Population* (Malthus, 1807[1996]) that population growth is exponential while the growth of the food supply or other resources is arithmetic or linear. Malthus believed there were two types of "checks" that kept population growth in line with the growth of the food supply: "preventive checks", such as moral restraints (abstinence and delaying marriage), and restricting marriage for persons suffering poverty or perceived as defective, and "positive checks", which lead to premature death such as disease, starvation (famine), and war. When the rate of growth of the population exceeded that of the food supply, positive checks such as famines would kick in to reduce population growth, resulting in what is called a "Malthusian catastrophe".

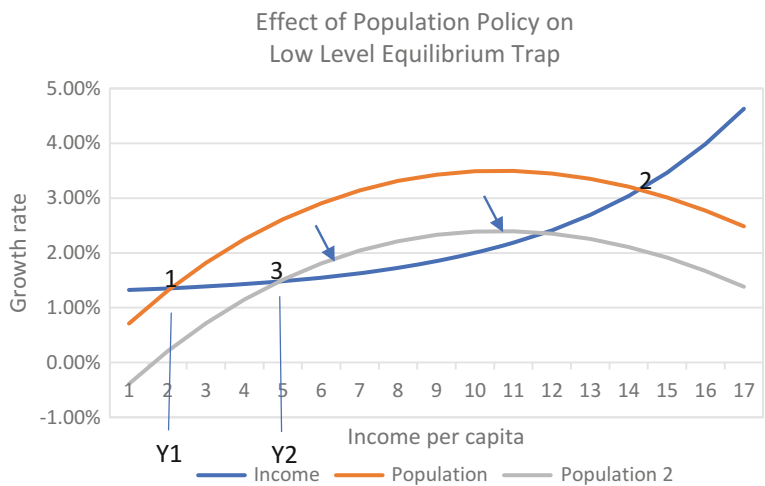
Malthus's theory was subsequently resurrected in the 1950s in the guise of theories of a "low-level equilibrium trap" model (Nelson, 1956). This simple two-equation model, recreated in Fig. 22.2a, postulates that the rate of growth of total income (or GDP) is a function of income per capita, as higher levels of per capita income permit higher levels of savings and capital formation. At the same time, the theory postulates that the demographic transition, represented by the growth of population has an inverse U relationship with per capita income. It is assumed that up to a certain threshold level of per capita income, households will respond to improved living conditions by having more children (due to earlier marriage and healthier mothers). In addition, higher per capita incomes mean better nutrition and medical care for children thus reducing the death rate. But beyond a certain level of per capita income, children become an economic burden and fertility falls. At the same time, it becomes difficult to reduce already low mortality rates. The result is a falling population growth rate. In the model, whenever the rate of growth of population exceeds that of income, income per capita (driven by the difference between the two rates of growth), will fall; when the two rates are the same – as in points 1 and 2 in Fig. 22.2a – the system is seen to be in equilibrium. In the model, less developed countries can be "trapped" at the lower level of equilibrium (income level Y1). The policy alternative is to lower the population growth rate curve through, for example, family planning, increasing the age of marriage, or improving the status of women. Lowering the population curve changes the equilibrium point to point 3 and a higher income level, Y2 (see Fig. 22.2b). Hazledine and Moreland (1977) tested this theory with a statistical model and were able to confirm the presence of a population-induced low-level equilibrium trap using international cross-country data. Therefore, the neo-Malthusian model presents a model-based theoretical policy basis for fertility lowering policies.

We have outlined the Malthusian and neo-Malthusian models because subsequent population and development models nearly always

**Fig. 22.2a** Malthusian equilibrium trap. (Source: Author’s calculations)



**Fig. 22.2b** Effect of population policy. (Source: Author’s calculations)



directly or indirectly mirror these. Let us turn now to two of the early population and development models that build on the neo-Malthusian tradition: the Coale-Hoover and BACHUE models.

**The Coale-Hoover Model**

The *Coale-Hoover* model (Coale & Hoover, 1958) was a seminal model that appeared in 1958 and was applied to Mexico and India. It was one of the first economic growth models to explicitly include fertility scenarios and was designed to explore the implications of alternative fertility scenarios on the economy. As such, it influenced much of the modeling of population and development through the 1970s and was

instrumental in justifying United States foreign policy on population.

The *Coale-Hoover* model was based on the classic Harrod-Domar economic growth model (Domar, 1946; Harrod, 1939) which already had a population term. In the Harrod-Domar model, the growth rate of income per capita,  $G(Y/P)$ , is a function of the average propensity to save (APS) divided by the incremental capital-output ratio (ICOR) minus the growth rate of the population:

$$G(Y/P) = APS/ICOR - G(P).$$

Hence, if the growth rate of the population were to diminish, the growth rate of income per capita would increase. But the *Coale-Hoover* model also assumed that the APS was negatively affected by fertility. The model assumed that as people had

more children, they would have to spend a larger fraction of their income on consumption and would have a smaller fraction left for savings. Thus, as the population growth rate  $G(P)$  rose, the average propensity to save (APS) would fall. This would reduce the growth rate of income, and consequently income per capita,  $G(Y/P)$ .

The *Coale-Hoover* model was a research model, but it also influenced policy. In its time, the model was perhaps one of the most influential within the wider population policy debate (especially among economists) on the effects of population growth on development. The model was innovative in that it included several demographic linkages, including the effects on capital formation, that had not been considered before and it also provided empirical evidence for lowering fertility based on applications to India and Mexico. At the policy level, the model provided justification within U.S. foreign policy for international efforts to limit fertility via increased use of contraceptives.

### The BACHUE Models

In the late 1970s, the International Labour Organization (ILO) initiated a program of developing economic-demographic models with an emphasis on income distribution as well as economic growth. Country-specific models were developed for Kenya, the Philippines, Yugoslavia, and Brazil (see for example Braganca et al., 1980; Macura et al., 1977; Rodgers et al., 1978). In addition, a model that attempted to consolidate the main relationships in these models, “BACHUE-International”, was developed (Moreland, 1984). Because of its generality, we will describe it here.

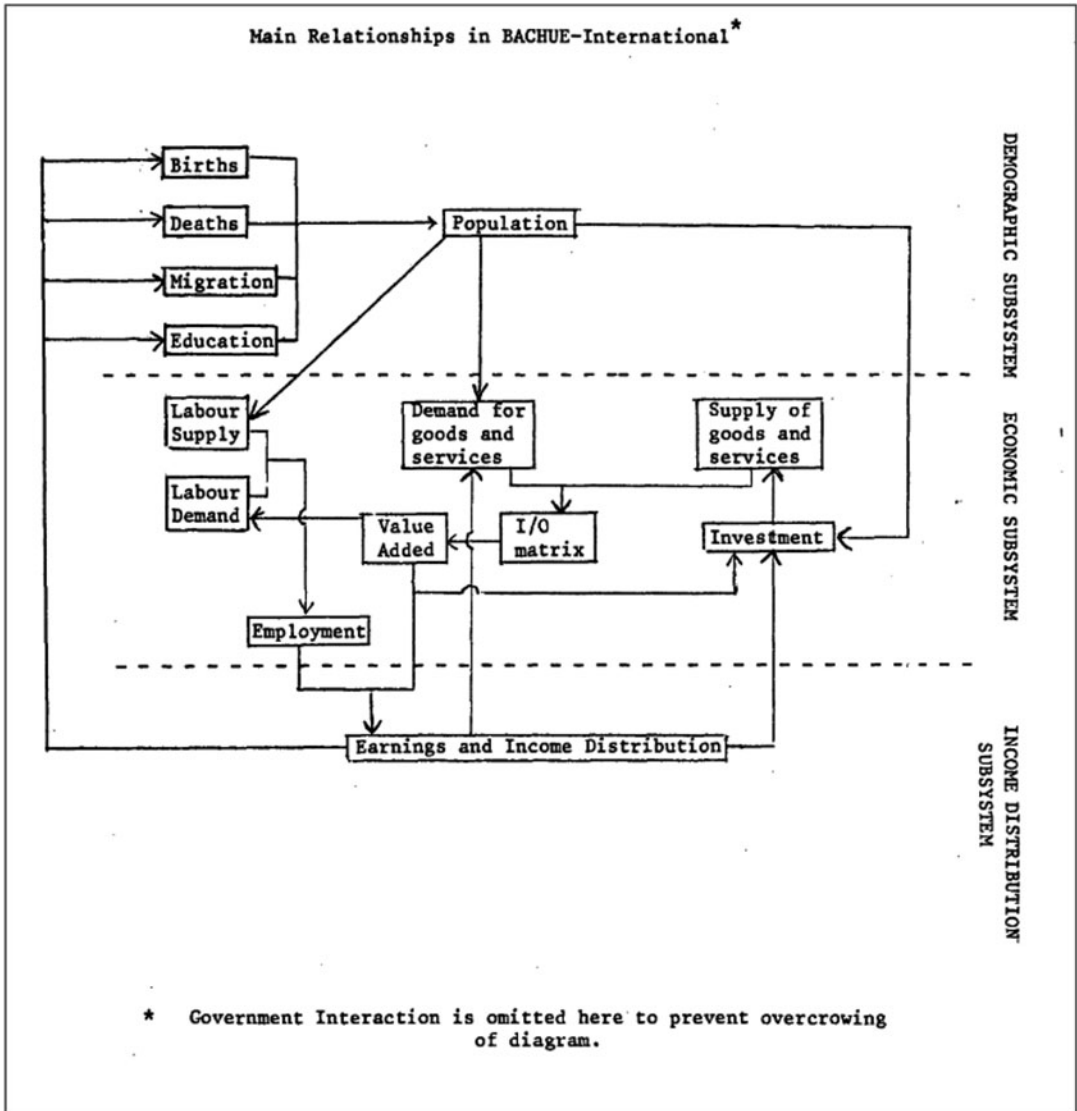
The BACHUE-International model can be viewed at two levels. First, it is a framework upon which a country or region-specific model can be built. As such it is a consistent system of relations between its various economic and demographic variables. Second, it is an empirically estimated econometric model that can generate time paths for a country or region starting from initial values.

Figure 22.3 presents an overview of the model with the main demographic, economic, and income distribution sub-systems. The *demographic sub-system* is standard and is concerned with tracking the population by age, sex, location, and education. The *economic sub-system*, the core of which is an input-output matrix, is concerned with generating value added by sector as well as employment. Output is constrained at the industry level. The *income distribution* sub-system is concerned with predicting the distribution, by decile, of income. It also generates mean earnings by each of the 20 classes of income earners as well as overall per-capita income.

Because the emphasis of this *Handbook* is on population policies, we present in some detail the demographic sub-system, which can also be considered a forerunner to later economic-demographic models described later. The demographic sub-system tracks the population by age, sex, urban-rural location and also by education level. The labor force in the rural and urban areas is also computed in this sub-system. The behavioral relations in the sub-system endogenously predict fertility rates, female life expectancy, the (net) rural to urban migration rate, educational completion rates, and female labor force participation rates. All relationships between independent and dependent variables were estimated statistically using international cross-section data.

*Fertility* is a function of the female labor force participation rate (FLFPR), illiteracy rate, per-capita income (YP), and the percentage of income earned by the poor. FLFPR is relevant because childbearing and rearing is a time-intensive activity and competes therefore with labor force participation for a mother’s time. Illiteracy enters as both a proxy for changes in the wage rate and hence the opportunity cost of time and as a taste variable. Income enters because a couple’s ability to support children may influence their fertility and also because tastes change with development and income levels. The income of the poor enters to pick up any non-linearity of the relationship between income and fertility.

*Female life expectancy* is expected to vary directly with income levels because as development takes place and incomes rise, people in both



**Fig. 22.3** BACHUE international model structure. (Source: Moreland, 1984)

the private and public spheres will be able to allocate more resources to healthcare and disease prevention. Illiteracy also plays a role here because more educated people may also be more knowledgeable about hygiene techniques, immunization programs, and nutrition. The prevalence of physicians in the population also has a positive influence on life expectancy. Female life expectancy is then used with Coale-Demeny regional model lifetables (Coale & Demeny, 1966), to calculate age-specific survivor rates for females

and males. These lifetables are empirically based lifetables that allow one to read off age specific survivor rates for various mortality levels corresponding to various regional life expectancy levels.

*Female labor force participation rates* are affected by fertility rates for the converse of the reasons given in the above discussion of fertility. Illiteracy plays a role here too as more educated females have greater skills and hence have a greater probability of obtaining employment.

Income also plays a role here but with a negative impact. This is an empirical result which can be explained in terms of “need”. As incomes rise, there is less pressure on women to work in order to contribute to household incomes.

Finally, the *rural to urban migration rates* are influenced by the relative difference in rural and urban incomes, as migrants presumably move to improve their standard of living. Illiteracy is negatively related to migration since less educated people are less informed of job possibilities and relative incomes, and have less “human capital” than more educated people.

The main linkages with the other sub-systems are from population and labor force into the economic sub-system. Linkages between the demographic sub-system and the income distribution sub-system are indirect via the economic sub-system.

The economic sub-system projects output (value-added) by economic sector as well as employment. The core of the economic sub-system is a ten-by-ten input-output table. Population variables link to the labor force (and its growth rate), investment, and the demand for goods and services. Note that the linkage to investment follows the Coale-Hoover model. The main linkages from this system are into the income distribution sub-system. They include value added and GDP, employment, and unemployment.

The income distribution sub-system predicts overall and rural and urban per-capita incomes, divides the labor force and value added by class, computes the distribution of earnings by decile, and also includes the tax system on earnings.

Complex models such as BACHUE-International can be used to explore policy experiments by changing various parameters or exogenous (policy) variables to see the effects on indicators of interest. The BACHUE models, including BACHUE-International, include income distribution as an output. In a simulated family planning program, modeled by assuming a one percent annual decrease in fertility for ten years, the model predicts a decrease in inequality along with an increase in average income as measured by per capita GDP. The broad decrease

in fertility has slightly more impact in the higher fertility rural sector than the urban sector, so that the rural population growth rate decreases more than the urban. This gives the experiment a rural bias. Total population has been reduced by over eight percent by the end of the 30-year simulation. This increases per capita income and stimulates total demand via increased private and government consumption. Higher female LFPRs increase rural and urban labor forces, but faster economic growth offsets this by lowering unemployment rates, particularly rural, so that the rural poor benefit with an increase in total incomes. The older age distribution also has an impact on the size of the rural and urban labor forces, which fall in the second half of the simulation period despite higher female participation in the labor force. As a result, labor markets tighten, and unemployment falls relative to the Base Run. The poor in both sectors gain in terms of relative and total incomes so that inequality drops. The model predicts that a family planning policy will not only increase average incomes, but also for those of people in the poorer segments of society.

## Demographic Dividend Models<sup>2</sup>

As we have seen, as far back as Malthus, models have been used to explore the relationships between demographic and economic variables. The advent of the concept of a potential “demographic” dividend, first proposed and calculated by Bloom and colleagues (Bloom et al., 2003; Bloom & Williamson, 1998) has recently generated several new models designed to study the demographic dividend concept. As these models have recently been discussed elsewhere (Groth & May, 2017), we will only provide a broad overview of a sample of these models.

There are several models designed to explore the potential demographic dividend in countries where the necessary demographic conditions are not yet in place. Ashraf’s simulation model

<sup>2</sup> See also Chapter 19: *Policies Needed to Capture Demographic Dividends* of this *Handbook* (Turbat, 2022).

(Ashraf et al., 2013) looks at the effect of reductions in fertility on output per capita. The model includes the effects of education, the size and age structure of the population, capital accumulation, and parental time for child-rearing, and fixed natural resources. It is parameterized using a combination of microeconomic estimates, data on demographics and natural resource income in developing countries, and elements of quantitative macroeconomic theory.

A model developed by Bloom and colleagues (Bloom et al., 2010) was applied to Nigeria and was empirically established from cross-country economic growth equations. It uses a Barro and Sala-i-Martin income per worker growth model (Barro et al., 2004) to formulate an estimable equation by relating income per worker growth to income per capita growth and working-age population growth.

The International Monetary Fund developed an econometric model (Drummond et al., 2014) to estimate the potential size of the demographic dividend for sub-Saharan Africa. The model was empirically estimated similarly to Bloom et al. (2010) and emphasized the role of human capital in explaining regional differences in the magnitude of the demographic dividend. The model was used to determine how the economic benefits of the dividend vary based on the pace and scale of the demographic transition and to explore if there are any minimum income and education levels required to obtain a demographic dividend.

The *DemDiv* model (Moreland et al., 2014) was developed with funding by the U.S. Agency for International Development (USAID)-supported Health Policy Project and applied in several countries in Africa and Asia (Health Policy Project, U.S. Agency for International Development [USAID], & Marie Stopes International, 2014). *DemDiv*'s target audience is policymakers outside the health sector in high-fertility countries. The main structural and behavioral equations were estimated with a statistical approach, including multiple linear regression. The model consists of two sub-models, a demographic one and an economic one. The demographic sub-model projects child mortality, the dependency ratio, fertility, population size and

structure, and life expectancy. The demographic calculations then feed into the economic sub-model, which consists of three equations describing capital formation, employment growth, and total factor productivity as a function of age structure and other social and economic variables. The two sub-model components interact over the projection period to describe the combined effects of changes in both sub-models, ultimately projecting GDP and GDP per capita. An interesting feature of this Excel-based model is that it is linked through a data exchange function to the *Spectrum/DemProj* model, which handles the population projections.

Another demographic dividend model was proposed by Ashraf, Weil, and Wilde (2013). They describe their model as “in the tradition of Coale and Hoover (1958) and many others” (*Ibid.*: 98). The model includes several dimensions beyond those in other models, but in many respects is like *DemDiv*. In this model, the effects of changes in the population via fertility on the economy are seen through several potential channels. The first channel is what they call the *Malthus effect* - the congestion of fixed factors, such as land, as factors of production. Another channel is what economists call “capital shallowing”, the result of a lower capital-labor ratio due to higher growth in the labor force. Also, like other models, including *DemDiv*, the model accounts for the impacts of changes in the population age structure resulting from changes in fertility on labor productivity and savings (and hence investment). The model's parameter values were chosen from other key research found in the literature or based on theory rather than on the author's original statistical estimates. While the simulation model is general, it can be tailored to the situation of specific countries. This includes country-specific demographic characteristics (vital rates, initial age structure), and the model can incorporate such country-specific measures as the role of natural resources in aggregate production and the openness of the capital market.

Demographic dividend models have been used both as research tools and as advocacy tools for targeted investments in family planning, and to contribute to the on-going research discussion of

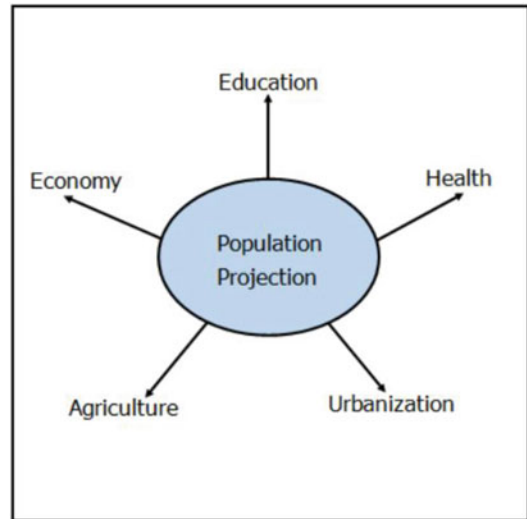
the potential contribution of fertility reduction and the consequent demographic changes, including those in the age structure, to income growth. As a research tool, models such as the Ashraf et al. (2013) model are similar to the Coale-Hoover model in the sense that the main purpose is to provide empirical evidence, via the model, of the existence of a demographic dividend and the conditions under which it might occur. As an example of use for policy advocacy, the *DemDiv* model was applied to Uganda by the National Planning Agency in collaboration other partners and the results presented to President Museveni who endorsed the report and its recommendations to reduce fertility, while making other complementary socioeconomic investments.

### Population and Sector Impact Models

We turn now to another class of population models, those dealing with the impacts of population on specific socioeconomic sectors. Such models are useful for planning purposes, such as when one wants to measure resource requirements in a sector, such as education, under alternative population assumptions. Sector models are also useful for advocacy purposes, for example to demonstrate the benefits to a given sector of reduced fertility due to increased family planning investments.

### Resources for the Awareness of Population Impacts on Development (RAPID)

The RAPID model (Avenir Health, n.d.) was developed to provide population and sector-level projections that can be used to improve the policy environment for effective population programs. The outputs of the model are used in policy presentations that are intended to increase policymakers' awareness about the impacts of population growth and demographic factors on specific socioeconomic sectors. The RAPID model was originally developed in 1978 under a contract funded by USAID (under project RAPID



**Fig. 22.4** Schema of the RAPID model. (Source: Avenir Health, n.d.)

I). Both the model and the presentations based on the outputs of the model have been continuously updated and improved since the original model. Part of the novelty of the original model for advocacy purposes at the time was the use of the first generation of Apple "personal computers", which used a television set to display animated graphs.

The RAPID model focuses on links between population and key sectors including education, the economy, urbanization, health, and agriculture (see Fig. 22.4). The main outputs in the education and health sectors are resource requirements such as the number of classrooms or the number of hospital beds that would be required under alternative population scenarios. The calculation of the "requirements" in health and education are made with an equation of the form:

$$\text{Requirements}_t = \text{Population}_t * [\text{Per capita Requirements}].$$

The population term may be a subset of the total population, such as the primary school aged population in the case of education, or it can be the total population.

For the economy, the model projects the labor force, the new jobs required to maintain the same level of employment, as well as the GDP and



GDP per capita. Unlike the demographic dividend models, the GDP is projected using a simple user-specified growth rate and not any kind of production function.

Urbanization in the RAPID model focuses on the growth in the population of urban areas and the main cities. In agriculture, the model projects arable land per capita and crop production of major crops is calculated using a per capita crop parameter times the population.

Criticisms of the RAPID model have focused primarily on its simplicity, especially when it is compared to some of the models of the economic impacts of population that we have reviewed in the previous sections. Yet, it is precisely this simplicity that accounts for the model's success and durability because the required inputs are easily available, and the logic of the model is easy to understand. After more than 40 years, RAPID models and their presentations continue to be popular as advocacy tools for family planning.

As the RAPID model is primarily an advocacy tool to support increased political support for family planning, development and application of the model is typically led by country partners, such as a National Population Commission or Ministry of Health of a given country. Policymakers and civil society leaders tailor the advocacy messages and serve as family planning champions. RAPID uses country-specific data and makes projections that are tied to the country's goals and priorities, such as those stated in national policies, vision statements, or international goals such as the MDGs or SDGs. Presentations based on the RAPID model have been made to cabinet-level officials in numerous countries, including Heads of state, and using the model and its outputs have been institutionalized frequently at the country level. For example, an early version of the accompanying presentation of a RAPID Nigeria application was converted to overhead slides and distributed to local NGOs who used the presentations at the community level to bolster support for family planning.

### **Family Planning and the Millennium Development Goals Model (FP-MDG)**

The advent of international development goals such as the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs), largely propagated by the UN, presented countries with challenges in terms of meeting various sector-specific targets or goals. Two models were developed as advocacy tools to show how investments in family planning, through changes in the demographic situation in a country, can help countries towards meeting the two goals. In that regard, the objectives of these two models are like those of the RAPID model.

The *FP-MDG model* (Moreland & Talbird, 2006) focused on five of the eight MDGs: achieve universal primary education; reduce child mortality; improve maternal health; ensure environmental sustainability; and combat HIV/AIDS, malaria, and other diseases. The model was used to perform a cost-benefit analysis of meeting current unmet need for family planning. For each country, two population scenarios were created: one when current unmet need for family planning is met and one when unmet need is not met and, therefore, contraceptive prevalence is constant. The model estimated the costs of family planning and of meeting selected targets of each of the five MDGs under the two scenarios. The difference in cost between the two scenarios was calculated over the ten-year period from 2005 to 2015. The additional cost of family planning was then compared with the savings that family planning could generate in each of the selected MDG sectors to calculate benefit-cost ratios for each sector. The analysis showed that the benefits (measured by savings in meeting MDG targets) from meeting unmet need far outweighed the extra costs of meeting the unmet need in all countries. The model has been applied to a number of countries. Results suggested that the benefit-cost ratios ranged from 2.03 in Ethiopia to 6.22 in Senegal. The greatest potential for cost savings in most countries is in education and maternal health.

The *FP-SDGs Model* (Jurczynska et al., 2018) followed the MDG model, by connecting family planning with selected SDGs. Developed under the USAID-funded Health Policy Plus project (HP+), the model can project the country-level effects of contraceptive use on various SDG indicators. Like the MDG model, the *FP-SDG* model is used for advocacy to quantify the “boost” family planning offers, through ensuing demographic change, toward the realization of selected SDGs.

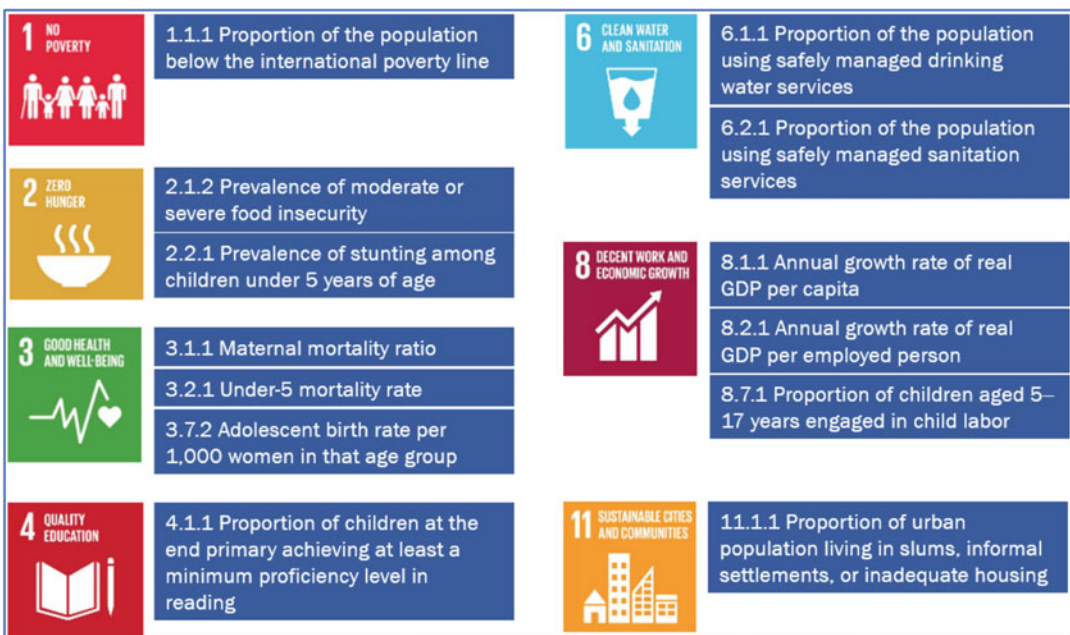
Users can design scenarios for various levels of family planning. The model is not limited to family planning or population inputs and addresses the interplay between them, as affected by programmatic and policy variables across other sectors. In addition to being comprehensive in scope, the model is based on a foundation of empirical and statistical research.

The model allows users to create three scenarios for a country by setting future values for family planning, education, governance, economic growth, and other policy variables. Resulting population projections interact with

equations to quantify how family planning can boost individual SDG indicators for each model year. The model allows a comparison of scenarios to show the additive benefits of different combinations of investments.

The *FP-SDGs* model builds on the theory and statistical relationships of the *DemDiv* model and extends these to selected SDG indicators where a statistically significant link to a demographic indicator could be established. Accordingly, the model focuses on thirteen SDG indicators covering seven of the 17 SDGs. These included indicators for poverty, food security, child stunting, educational achievement, water and sanitation services, income growth, child labor, and others variables (see Fig. 22.5).

The Excel-based model is easy to use and has its own data base of country-level indicators that facilitate country-level applications. The *FP-SDGs* model has four core modules: (1) demographics, (2) health, (3) economics, and (4) development. In each module, base year data and future values for scenarios serve as equation inputs, enabling the user to derive values for each



**Fig. 22.5** Selected sustainable development goals indicators included in *FP-SDGs* model and relevant output indicators. (Source: Jurczynska et al., 2018)

SDG outcome indicator for all model projection years. Like *DemDiv*, the model links to *Spectrum/DemProj* to calculate the key population variables such as the population in various age groups and the dependency ratio.

Both models have been used primarily for advocacy purposes. The *FP-MDG* model was applied to over 20 countries and the results were used in a series of policy briefs under the Health Policy Project. The *FP-SDGs* model has been applied in sub-Saharan African countries including Tanzania, Madagascar, and Mali.

## Impact Now

*Impact Now* (Health Policy Project, U.S. Agency for International Development (USAID), & Marie Stopes International, 2014) is another family planning advocacy model. The Excel-based model estimates the health and economic impacts of family planning in a seven- to ten-year timeframe. The outcomes are focused on reproductive health and economic indicators such as cost-benefit ratios and incremental cost-effectiveness ratios (ICER). *Impact Now* was adapted from Marie Stopes International's (MSI) Impact 2 model (Marie Stopes International, 2015) through a collaboration between MSI and the USAID Health Policy Project (HPP). While Impact 2 is more focused on estimating the effectiveness of the FP services provided by an institution, *Impact Now* is more focused on the impacts from all national and regional-level providers. *The Impact Now* model, like the *FP-SDGs* model, is designed to be user-friendly with easy-to-use navigation, default data, and automatic scenario comparisons.

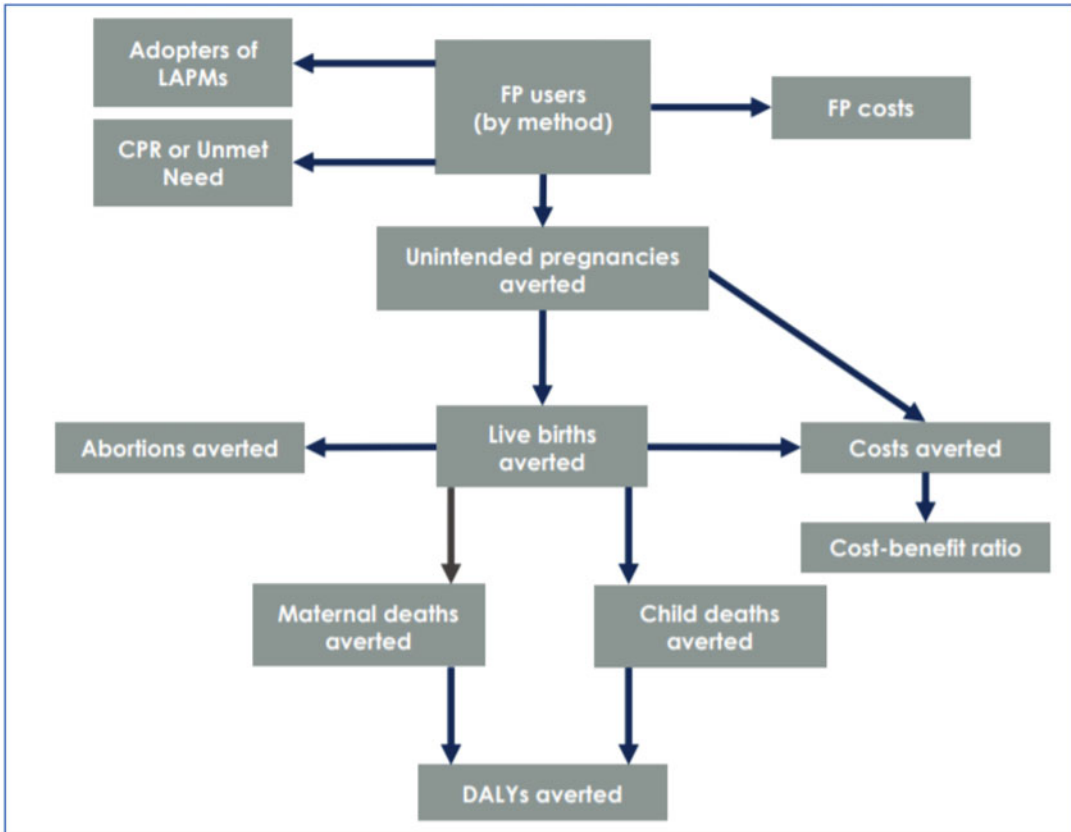
The general *Impact Now* Framework is presented in Fig. 22.6. Unlike other sectoral models we have reviewed, this model focuses on the short-term health impacts of family planning investments. Emphasis is placed on averted births and the downstream effects of these on averted abortions and averted maternal and child deaths. Based on these metrics, averted disability adjusted life years (DALYs) are

calculated for maternal and child mortality impacts. The model also calculates the cost averted by fewer births. This is used as a basis for cost-benefit analysis and calculation of an incremental cost-effectiveness ratio (ICER), a metric often used to compare the cost-effectiveness of alternative health investments.

As an advocacy tool, *Impact Now* was developed on the principle that policymakers in government will be most interested in the short-term impacts of fertility-reducing strategies, rather than on the longer-term impacts that require changes in the age structure. As an example of how it has been used, the USAID Health Policy Project applied the model in the Amhara region of Ethiopia in collaboration with the Regional Health Bureau other key regional stakeholders including universities, NGOs, and other regional government departments to explore how investing in FP could help bring about further reductions in maternal and child mortality (Health Policy Project & Amhara Regional Health Bureau, 2014). Other similar applications of the model have included Ghana, Kenya, and Zimbabwe.

## Population, Food Security, and Climate Change Model

Developing countries face increasing challenges in the area of food security, which can be the result of many factors related to both food supply/production and food demand/consumption. Such factors include lack of resources to purchase or grow food (i.e., poverty; increases in food prices; policies that encourage the production of meat at the expense of more affordable foods; inadequate food distribution systems; inappropriate agricultural policies; inappropriate land use policies; environmental degradation; declining agricultural yields induced by climatic changes; and population growth). *The Population-Food Security-Climate Change* model (Moreland & Smith, 2013) focuses on these last two factors: climate change, a significant factor on the supply side of the food security issue, and population growth, a significant factor affecting demand.



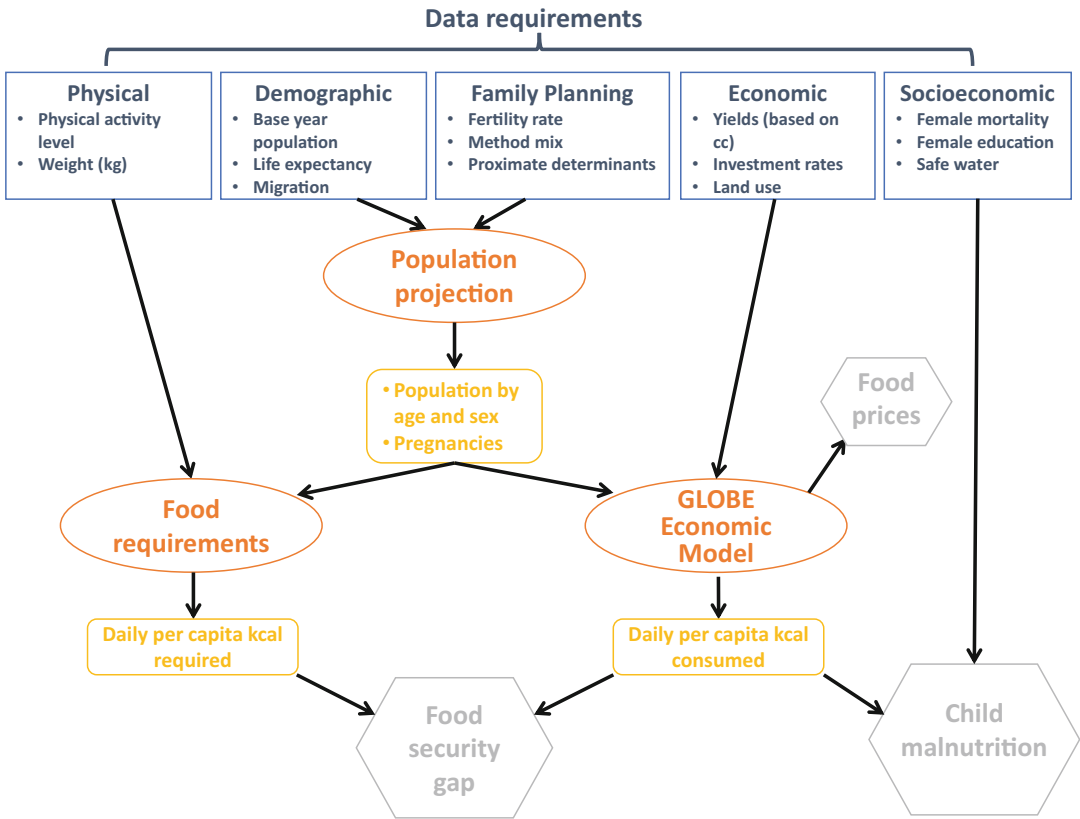
**Fig. 22.6** Impact now framework. (Source: Marie Stopes International, 2015)  
 Note: LAPMs are Long Acting and Permanent Methods (family planning)

The policies and strategies that are most often discussed to help farmers deal with expected climate change-induced decreases in yields focus on technological and farming systems solutions. While some analyses may link climate change and food security to growing population as a factor, climate change adaptation strategies rarely mention reducing population growth rates via voluntary family planning as a strategy. This policy model was developed to improve our understanding of the linkages between population and food security in a world of climate change and in countries with high rates of population growth.

Figure 22.7 outlines the model’s framework. The model consists of three distinct sub-models: (1) a population model that projects the population; (2) a food requirement model that projects food energy requirements necessary to maintain the health of the population; and (3) an economic

model that projects food consumption.<sup>3</sup> Food energy requirements (in kilocalories) of the population are estimated using Food and Agricultural Organization (FAO) and World Health Organization (WHO) formulas and a population projection. The resulting energy requirements are then compared to projected kilocalories (kcal) consumed by the population. Food consumption is calculated in an economic sub-model where food units expressed in monetary value are converted to their equivalent in kilocalories. The balance between food requirements and predicted food

<sup>3</sup> The dynamic version of GLOBE used here is based at the Institute of Development Studies (IDS) at the University of Sussex. The model consists of a set of individual country or region models that provide complete coverage of the global economy and are linked through international trade in a multi-region model system. Outputs for the country of interest are used in the model.



**Fig. 22.7** Framework of population-food security and climate change model. (Source: Moreland & Smith, 2013)

consumption is taken as the model’s estimate of the extent of food insecurity.

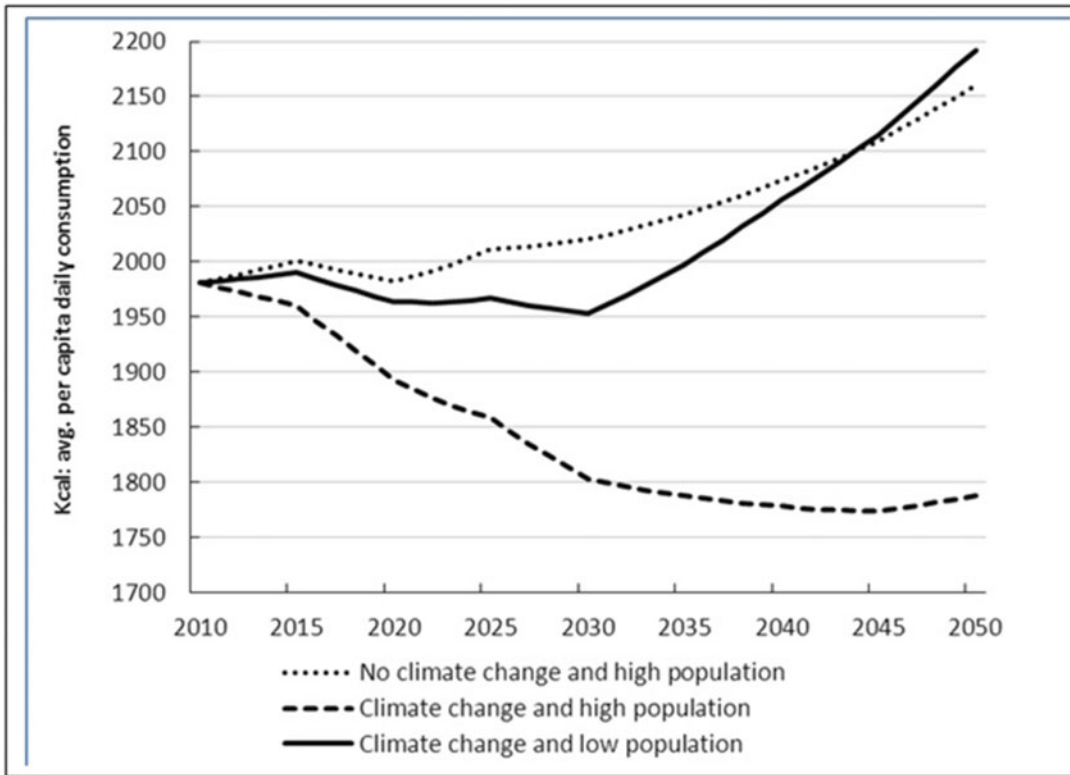
The model was applied to Ethiopia, where three scenarios were constructed to show the mitigating effects of fertility on the impacts of climate change on food security: (1) climate change and high population growth; (2) no climate change and high population growth; and (3) climate change and lower population growth. The model showed (see Fig. 22.8) that under the climate change and continued high population growth scenario, food security, as measured by calorie consumption, would decline. If no climate change were to occur, calorie consumption increases as yields do not fall. However, the model predicted that lowering population growth can virtually cancel the effects of climate change.

The model has served both research and advocacy purposes. Similar to models that have been used to show how demographic variables interact

with other socioeconomic indicators, the model demonstrates how lowering fertility can mitigate the effects of climate change on food security. The model and its results were presented at scientific conferences in Seattle, Accra, and North Carolina and published in a peer-reviewed journal. In terms of advocacy, the model was used extensively by the Population-Health-Environment Consortium of Ethiopia at the regional level to educate policymakers and other stakeholders on the messages of the model from the Ethiopian application.

## Conclusion

This chapter has provided an overview of population models and their use. Models are useful tools that can aid the understanding of complex and dynamic systems such as those involving



**Fig. 22.8** Three scenarios for population growth and climate change effects on per capita calorie consumption in Ethiopia. (Source: Moreland & Smith, 2013)

demographic patterns and trends. Like other types of models, population models are useful tools that can help decision-makers and other stakeholders to “connect the dots” between seemingly unrelated variables. As such, a model can provide a way to formalize what may be a “mental” model and make the underlying assumptions transparent. Also, impacts of changes in a variable due to a change in another are often indirect; models can illustrate these linkages and estimate their effects. In other cases, especially when thinking about the future, long-term effects are more important than short-term ones as is the case, for example, of changes in the fertility rate on entrants to the job market. Experience using the RAPID model and the *DemDiv* model have underscored the awareness raising and pedagogical benefits of population models.

Population models have also provided research evidence to bear on discussions around

the impacts of population changes on socioeconomic development. Some economists and some less developed-country policymakers have been skeptical of the importance of demographic factors on economic growth. The research models in this area, pioneered by the Coale-Hoover model and more recently by the models focusing on the demographic dividend, have contributed to developing a consensus on the benefits of fertility reduction to economic and social well-being.

Such models are also useful tools to help develop economic as well as population and health policies and programs. First, population models can suggest that policies and programs that are aimed at demographic change can impact key outcomes, and help introducing such demographic strategies into the policy and program strategy. The *population, climate change, and food security* model is one example, as is the *FP-SDG* model. Also, by quantifying the future

impacts of changes in selected variables on indicators, models can aid in the development of feasible objectives and the requirements to achieve these goals. Models such as *FamPlan* or *Reality Check*, for example, can help program planners to estimate the family planning resources required to meet specified goals.

Finally, it should be recalled that models, like any quantitative tool, are limited by the information and data on which they rest. Our understanding of the world can be guided by models, but models are artificial constructs of the real world and, by their nature, are simplifications of reality no matter how complex they are. As with any data or research, models are but one input into the decision-making process. Ultimately, decisions must be made in the context of the socio-political situation in a country, as chosen by their leaders and populations.

## References

- Ashraf, O., Weil, D. N., & Wilde, J. (2013). The effect of fertility reduction on economic growth. *Population and Development Review*, 39(1), 97–130.
- Avenir Health. (n.d.). *Spectrum manual: Spectrum system of policy models*. Avenir Health. <https://www.avenirhealth.org/software-spectrum.php>. Accessed 10 Jan 2022.
- Barro, R. J., & Sala-i-Martin, X. (2004). *Economic growth*. Massachusetts Institute of Technology.
- Bloom, D. E., & Williamson, J. G. (1998). Demographic transitions and economic miracles in emerging Asia. *The World Bank Economic Review*, 12(3), 419–455.
- Bloom, D. E., Canning, D., & Sevilla, J. (2003). *The demographic dividend: A new perspective on the economic consequences of population change*. RAND.
- Bloom, D. E., Finlay, J., Humair, S., Mason, A., Olaniyan, O., & Soyibo, A. (2010). *Prospects for economic growth in Nigeria: A demographic perspective*. Paper presented at the International Union for the Scientific Study of Population (IUSSP) Seminar on Demographics and Macroeconomic Performance, June 4–5, 2010.
- Bongaarts, J. (1978). A framework for analyzing the proximate determinants of fertility. *Population and Development Review*, 4(1), 105–132.
- Bongaarts, J. (2015). Modeling the fertility impact of the proximate determinants: Time for a tune-up. *Demographic Research*, 33, 535–560.
- Bongaarts, J., & Stover, J. (1986). *The Population Council target setting model: A user's manual*. The Population Council.
- Braganca, S. L., de Figuerido, J. B., & Rato, H. M. (1980). *The simulation of economic and demographic development in Brazil*. International Labour Organization.
- Buettner, T. (2022). "Population projections and population policies." Chapter 21. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Coale, A. J., & Demeny, P. (1966). *Regional model life tables and stable population*. Princeton University Press.
- Coale, A. J., & Hoover, E. M. (1958). *Population growth and economic development in low income countries*. Princeton University Press.
- Domar, E. (1946). Capital expansion, rate of growth, and employment. *Econometrica*, 14(2), 137–147.
- Drummond, P., Thakoor, V., & Yu, S. (2014). *Africa rising: Harnessing the demographic dividend*. IMF Working Paper WP/14/143. International Monetary Fund.
- Groth, H., & May, J. F. (2017). *Africa's population: In search of a demographic dividend*. Springer.
- Harrod, R. F. (1939). An essay in dynamic theory. *The Economic Journal*, 49(193), 14–33.
- Hazledine, T. J., & Moreland, R. S. (1977). Population and economic growth: A world cross section study. *Review of Economics and Statistics*, LIX(3), 253–263.
- Health Policy Project & Amhara Regional Health Bureau. (2014). *The near-term health and economic benefits of family planning in the Amhara region, Ethiopia*. Palladium, Health Policy Project. <http://www.healthpolicyproject.com/index.cfm?id=publications&get=pubID&pubID=421>. Accessed 4 Jan 2022.
- Health Policy Project, U.S. Agency for International Development (USAID), & Marie Stopes International. (2014). *Impact Now Manual, version 2.0, revised 2018*. Palladium, Health Policy Project.
- Jurczynska, K., Moreland, S., Sacher, S., Bispo, S., & Corpuz, K. (2018). *Modeling the effects of family planning on the sustainable development goals: Family planning-sustainable development goals model methodology and user's guide*. Palladium, Health Policy Plus.
- Macura, M., Popović, B., & Rasević, M. (1977). *BACHUE-Yugoslavia: Regionalised policy simulation economic-demographic model of Yugoslavia: Conceptual basis*. Working Paper Number 55, World Employment Programme Series. International Labour Organization.
- Mahjabeena, T., & Khanb, I. A. (2011). *Analyzing Bongaarts model and its applications in the context of Bangladesh*. Paper presented at the 19th International Congress on Modelling and Simulation. December 12–16, 2011.
- Malthus, T. R. (1807[1996]). *An essay on the principle of population; or a view of its past and present effects on human happiness, with an enquiry into our prospects respecting the future removal or mitigation of the evils which it occasions* (4th ed.). Routledge/Thoemmes.

- Marie Stopes International. (2015). *Impact 2: An innovative tool for estimating the impact of reproductive health programmes*. Marie Stopes International. <https://www.msichoices.org/media/3320/impact-2-introductory-guide-june-2018-1.pdf>. Accessed 14 Jan 2022.
- Moreland, R. S. (1984). *Population, development and income distribution: A modeling approach*, BACHUE-international. Gower & St. Martin's Press for the International Labour Office.
- Moreland, R. S., & Smith, E. (2013). Climate change, food security, and population in sub-Saharan Africa: Modeling the linkages. *The International Journal of Climate Change: Impacts and Responses*, 4(2), 29–47.
- Moreland, R. S., & Talbird, S. (2006). *Achieving the Millennium Development Goals: The Contribution of Fulfilling the Unmet Need for Family Planning*. U.S. Agency for International Development (USAID). <http://www.healthpolicyinitiative.com/Publications/Documents/MDGMaster%209%2012%2006%20FINAL.pdf>. Accessed 14 Jan 2022.
- Moreland, R. S., Madsen, E. L., Kuang, B., Hamilton, M., Jurczynska, K., & Brodish, P. (2014). *Modeling the demographic dividend: Technical guide to the DemDiv model*. Futures Group, Health Policy Project. [http://www.healthpolicyproject.com/pubs/343\\_FINAL\\_DemDivTechnicalReportFINALEC.pdf](http://www.healthpolicyproject.com/pubs/343_FINAL_DemDivTechnicalReportFINALEC.pdf). Accessed 6 Jan 2022.
- Nelson, R. (1956). A theory of the low-level equilibrium trap in underdeveloped economies. *The American Economic Review*, 46(5), 894–908.
- Raftery, A. E., Alkema, L., & Gerland, P. (2014). Bayesian population projections for the United Nations. *Statistical Science*, 29(1), 58–68.
- RESPOND Project. (2014). *Reality check: A planning and advocacy tool for strengthening family planning programs: Version 3. User's guide*. EngenderHealth.
- Rodgers, G. B., Hopkins, M. J. O., & Wéry, R. (1978). *Population, employment and inequality: BACHUE Philippines*. Saxon House for International Labour Organization.
- Turbat, V. (2022). “Policies Needed to Capture Demographic Dividends.” Chapter 19. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies* (pp. xx–xx). Springer.
- United Nations. (2019a). *World population prospects, Vol. I: Comprehensive tables*. Department of Economic and Social Affairs, Population Division. [https://population.un.org/wpp/Publications/Files/WPP2019\\_Volume-I\\_Comprehensive-Tables.pdf](https://population.un.org/wpp/Publications/Files/WPP2019_Volume-I_Comprehensive-Tables.pdf). Accessed 12 Jan 2022.
- United Nations. (2019b). *World population prospects 2019: Methodology of the United Nations population estimates and projections*. Department of Economic and Social Affairs, Population Division.





# Funding of Population Policies and Programs

# 23

Arin Dutta, Kevin Ward, and Suneeta Sharma

## Background

Governments have long been interested in tracking and responding to demographic trends in their population. Historically, reasons for intervention included limiting resource consumption and expanding the size of the workforce or military. More recently, attention has shifted, on the one hand, to the consequences of high fertility and its health, environmental, and social implications in countries with limited contraceptive use and, on the other hand, to the consequences of low fertility on the dependency ratios and the link to national socioeconomic aspirations. In either scenario, government intervention in population-related matters is likely, though in resource-constrained low-income countries, execution of related policies faces a financing gap. Measuring changes in population through various data collection efforts also remains a governmental responsibility. In some settings, given the political sensitivity of measuring which subnational region

is growing, perhaps due to the impact of such data on parliamentary representation, population-related surveys and censuses are publicly funded, even if certain functions may be privatized.

These issues suggest the broad components of governmental intervention in population-related matters, which can occur actively or passively. Governments may actively attempt to change demographic trends. However, they can also passively adapt to population change by adjusting allocations to social services in growing regions or amending rules to increase or decrease representatives by geographical area. Similarly, for regions with declining fertility and a shrinking population, government policies may shift resources away from childcare and education and toward elderly care and retirement-related benefits. Such funding shifts and related policies and programs can be classified as passive responses – adaptations to demographic change – using definitions from May (2012).

The focus of this chapter is on the funding of active responses, i.e., those that seek to influence rather than adapt to demographic trends. Ideas about ideal population size and composition are culturally determined and may become politicized. As a result, how governments choose to influence demographic trends may vary across countries, even if underlying indicators are similar. The specific response and the resources invested will depend on the specific problem and perceptions of the most effective and acceptable solutions. For example, if the social perception of demographic pressure becomes acute, e.g.,

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when the access to and quality of public services is low and linked in the popular imagination to the levels of current rather than past population growth, there may be a political will to finance access to modern contraceptives and to support related programs. If fertility rates fall below replacement and such data become public, the related politicization of the subject and its link to social perceptions of national status may create pressure for policy change, and the government may provide incentives for childbearing, subsidies for childcare services, etc.

In mobilizing domestic resources for active policy responses to demographic trends, governments may make their fertility-related goals explicit or implicit. Governments may make some population policies explicit by announcing related intentions to affect demographic trends. Implicit policies often have a primary rationale beyond reducing or increasing fertility rates, such as policies for female empowerment and gender equality, or those providing better childcare as well as expanding access to and reducing the cost of healthcare in general. Yet, these policies may affect demographic trends and affect the population composition. Policies that reduce mortality sharply have major demographic impact even in the short-term, such as policies that limit tobacco use or those that finance universal primary healthcare. Partially or fully attributing the fiscal cost of these implicit policies to a broad definition of budgetary costs of population policies may be difficult.

In mobilizing resources for population policies, goals may be expressed in other ways than in terms of affecting fertility. Alternative motivations can be more persuasive in convincing all the stakeholders necessary for budget approval and policy implementation. As an example of motivation, policies that intend to moderate population growth, change the age distribution, and modify the dependency ratios are often defended as beneficial to deliver the “demographic dividend,” which is then related to faster economic growth. This argument is often effective for releasing tax-funded resources for family planning in countries where cultural pronatalism is present. Similarly, in wealthier countries

pursuing pronatalist policies, schemes providing grants and subsidized services to pregnant women successfully carrying to term or to families with young children can influence fertility decisions, but these policies are also defended in terms of improving household well-being and equity, especially if higher fertility is correlated with socioeconomic deprivation. Indeed, impacting fertility may not be mentioned as the explicit goal of government policies and programs in this space, as dictated by politics.

In framing the chapter, we look at countries broadly by income group. With some exceptions, the concerns associated with high fertility rates tend to be concentrated in low- and middle-income countries (LMICs), while wealthier countries, such as the members of the Organisation for Economic Co-operation and Development (OECD), are more likely to experience low fertility and population aging. This distribution of population-related concerns is one reason for the considerable difference in financing between population-level family planning programs – where there is often a financing gap and potentially significant external funding – and pronatalist policies, which are mostly funded domestically. However, there are other differences in financing these two major groups of population-related policies, which are discussed in this chapter. In OECD countries and other high-income economies, ongoing provision of contraception and reproductive choice services is funded from diverse sources for women who want to limit or delay birth, with a dominance of out-of-pocket and insurance payments. Given that these programs are financed from the demand side rather than as public health driven policies, direct government funding is limited in many high-income countries. In this chapter, we focus on financing of contraception and family planning services in the LMICs.

We begin this chapter by reviewing the financing of data collection from population-level surveys and censuses, both tools for understanding demographic trends before a government can design and take policy actions. Next, we discuss the financing of family planning programs, which have the intended effect of

decreasing fertility rates. Excluded from the discussion are policies inconsistent with a rights-based family planning approach. Then, we turn to the financing of policy measures to increase fertility, referred to as pronatalist policies, considering both active and explicit policies in this context as well as the more implicit measures. We conclude with a look at the long-term, including shifts in trends for financing of family planning expected due to global population trends, and the possible role immigration policy can play in closing the gap between population policy goals and outcomes.

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### Financing Population Surveys and Censuses<sup>1</sup>

Before a government can adopt active measures to increase or decrease fertility – or even respond passively to fertility trends – it must understand how demographic indicators are changing. Though a sample-based approach is possible for certain types of data, especially for measures to be collected with regular periodicity, censuses are required to inform major national decisions around social and economic planning and for administrative purposes, such as apportioning legislative representation. Under the last round of the World Programme on Population and Housing Censuses, all but five countries agreed to conduct a census between 2005 and 2014. Some countries have a regular program of conducting censuses, such as the U.S. decennial census schedule, with the most recent being in April 2020. Compared to sampling-based approaches, census can be very expensive exercises. For some countries, this periodic enumeration of their entire population can be the largest peacetime mobilization. The United Nations Population Fund (UNFPA) recommends that countries conduct a census at least every ten years, and many countries take that advice. In the 2010 census round, only 21 countries failed to

complete a census, compared to 31 countries in the 2000 round.

Though comprehensive in enumeration, population censuses have their limitations. They tend to ask simple questions to ease comprehension across diverse respondents and rely on the household member available on the enumeration day to answer questions for the whole household. Hence, for some population-related data, special purpose surveys may be needed. One such survey is the Demographic and Health Survey (DHS) program, which collects detailed data from sampled households and individual men and women on reproductive health, fertility, childbirth, and knowledge of specific health risk factors. The DHS program also conducts disease-specific surveys for malaria and HIV, with the latter including the collection of biological samples for testing and hence helping to establish a population-level prevalence of HIV. The DHS program is supported by the U.S. Agency for International Development (USAID) and to date has funded over 300 surveys in 90 countries, mostly in the LMICs (USAID, 2018).

There is less external support available for censuses. A 2008 UN report projected that of 40 countries studied, domestic funding would cover 50–90% of the census cost in 18 countries and less than 50% in 22 countries (Stukel, 2008). The African continent accounted for 21 of these 40 countries. However, with relatively low census data collection cost per capita, the overall shortfall in funding in Africa amounted to only USD 715 million, which is minor in comparison to the global cost of the 2010 census round of USD 31.7 billion. Among one of the few external funders of censuses, UNFPA dedicated over USD 280 million to support the 2010 census round with about 75% going to the needs of just fifteen countries (UNFPA, 2016).

In the 2010 census round, cost was the most frequently reported challenge (67% of all countries) (UNSC, 2012). Among the countries of the UN Economic Commission for Europe that conducted a traditional census, field enumeration accounted for over half of total census expenditure. Some countries have also reduced costs for field enumeration by relying on existing

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<sup>1</sup> See also Chap. 16: *Data Collection for Population Policies* of this *Handbook* (Spooenberg, [this volume](#)).

administrative data, as long as such data are of required quality and specificity. Even if compromises must be made in their use, such data are available at low or no cost to national statistical agencies, and include registers of building and housing, taxation, social security, education, etc. While the cost of a traditional census ranged from USD 1.45 to 40.17 per capita adjusted for purchasing power parity (PPP), registers-based census costs ranged from USD 0.04 to 1.39 (Table 23.1).

New technologies such as the Internet for self-enumeration can help to bring data collection costs down. In the 2010 round, Europe again had the largest number of countries reporting use of internet-based self-enumeration (thirteen of 39 respondents), though Asia was close behind (twelve of 39 respondents). This may explain why estimated per capita costs in Asian countries were approximately half of those for African countries. Though they may be helpful elsewhere, administrative registers may be most appropriate for countries where cost is the greatest obstacle.

Applying register-based techniques as well as Internet-based self-enumeration both present significant obstacles for many LMICs. Until LMICs improve the completeness, availability, and quality of their administrative registers and strengthen both Internet penetration and digital literacy, traditional censuses will continue to be required.

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## Financing Family Planning Programs<sup>2</sup>

### Low and Middle-Income Countries

Chapter 15: *Population Institutions and International Population Conferences* of this *Handbook* (Bernstein et al., [this volume](#)) details the story of how global support for population policies in LMICs emerged from critical international conferences in the last few decades of the twentieth century. With widespread acceptance of the so-called “Cairo Consensus” stemming from the

1994 International Conference on Population and Development (ICPD) held in that city, institutions coordinating population policies strengthened their existing role in Asian LMICs and came into being in Africa. In the two decades of the seventies and eighties, Latin America and the Caribbean had already made significant progress on family planning (May, 2012). With technical assistance funded by donors, these population institutions in Asia and Africa developed long-term population strategies to be implemented by ministries of health, government facilities, and non-governmental organizations.

In LMICs, most of the population strategies called for achieving the state of sustainable population growth, tied to a vision of steadily increasing modern contraceptive prevalence and a concomitant decrease in the total fertility rate (TFR) over time. Policymakers also recognized the influence on fertility choices of increased female literacy and education attainment, female labor force participation and economic empowerment, as well as shifting cultural norms related to childbearing and family size. Funding for these latter programs, though not often linked explicitly to family planning, steadily rose from a low base.

Through the early decades of the Cairo Consensus till recently, domestic tax-funded support for diverse interventions related to implementing population policies remained limited in LMICs. Some countries such as the People’s Republic of China enacted policies that limited reproductive rights by strict regulation of family size rather than enhanced access to contraception. The People’s Republic of China achieved significant reductions in fertility but the direct fiscal impact of implementing such policies was minor. In other developing Asian countries, especially in South Asia, government spending on family planning programs rose slowly with acceptance of an agenda more aligned with the Cairo Consensus.

Thus, the narrative of the eventual surge in global funding for family planning programs in LMICs began from the 1994 ICPD Conference. The narrative also relates to improved data on fertility trends and contraceptive use in the developing world, especially the realization that

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<sup>2</sup> Chapter 27: *The Contraceptive Revolution* of this *Handbook* provides an overview of family planning programs, with a focus on the LMICs (Cleland, [this volume](#)).

**Table 23.1** Census cost per person by census type in select UNECE countries, 2010 census round

Country	Total cost (USD, thousand)	Cost per capita (USD)	Cost per capita (USD, PPP)
<b>Traditional census</b>			
Russian Federation	544,800	3.81	4.79
France	405,067	6.22	5.16
Portugal	65,733	6.23	7.06
UK	807,350	12.87	11.82
Italy	840,842	13.85	12.49
Canada	658,236	19.09	15.34
Ireland	83,357	18.21	15.64
United States	12,520,538	40.17	40.17
<b>Combined census</b>			
Turkey	13,962	0.19	0.31
Switzerland	21,297	2.69	1.65
Spain	118,318	2.56	2.56
Poland	136,534	3.54	5.59
Lithuania	11,954	3.94	6.01
Latvia	10,664	5.18	7.24
Germany	1,043,987	12.76	11.41
Estonia	18,735	13.98	18.56
Liechtenstein	1670	47.09	28.8
<b>Register-based census</b>			
Slovenia	70	0.03	0.04
Denmark	376	0.07	0.05
Netherlands	1949	0.12	0.1
Finland	1281	0.24	0.18
Norway	2465	0.5	0.31
Sweden	6698	0.71	0.51
Austria	13,781	1.64	1.39

Source: UNECE (2014)

despite progress in some countries in Asia and Latin America and the Caribbean, there remained regions of Africa and South Asia with persistently high fertility levels and low recorded modern contraceptive prevalence rates (mCPR) among women of reproductive age. In 2000, high-income countries had an overall mCPR of 65.5%, compared to 56.6% in middle-income countries and just 14.5% in low-income countries (World Bank, 2020). However, by 2016 the average rate for low-income countries had climbed to 27.2%, while the average rate for middle-income countries remained steady. More recently, improvement in mCPR in sub-Saharan Africa has varied by region, with major increases in southern and eastern Africa, and slower progress in west and central Africa.

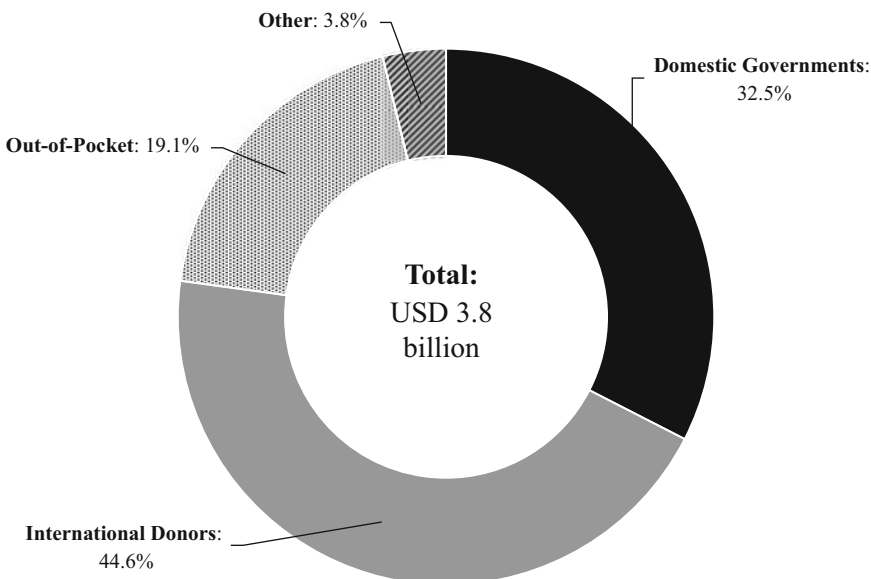
The UN population activities are consolidated under the United Nations Population Fund (UNFPA, known as the United Nations Fund for Population Activities from 1969 to 1987). With the establishment of the UNFPA in 1969, a coordination and goal-setting organization became active that could influence international financing for family planning. In its own right, UNFPA applied its pooled resources from member country contributions for financing contraceptive products to be donated to specific low-income countries and for technical assistance on population issues to a broad set of countries. USAID established its Office of Population in 1969 as well, and family planning assistance from USAID rose rapidly over the 1970s. USAID funding support was especially significant in

allowing collection of demographic data in LMICs, including the Demographic and Health Surveys (DHS) program that was launched in 1984. Commodity financing scaled up from 1990 onwards as the USAID established dedicated procurement projects to deliver modern contraceptives to LMICs.

Recognizing the need for continued financing and the need to sustain the political will and commitment for family planning, new coordinating mechanisms came into being in new millennium, such as the FP2020 Partnership, which emerged from the 2012 London Summit on Family Planning. Key donors formed the “Alliance for Reproductive, Maternal and Newborn Health”, a partnership of USAID, the Australian Government’s AusAID, the United Kingdom’s Department for International Development, and the Bill & Melinda Gates Foundation (BMGF). The FP2020 partnership recognized such collaboration in the global family planning financing scene, especially including the private philanthropic foundations who had begun to provide significant support to contraceptive procurement as well as development of new methods and delivery mechanisms.

The foundations now operate alongside established bilateral (e.g., USAID) and multilateral donors (e.g., the World Bank, UNFPA). FP2020 set ambitious new goals and began to track commitments of donors and country governments towards family planning, especially in a core group of 69 LMICs of high fertility and significant potential to contribute to global targets for new users of contraception.

Currently, domestic tax-based budgetary support plays the second largest part in funding family planning programs in LMICs, though a large part of the total across the 69 FP2020 countries is contributed by a few large countries. Figure 23.1 shows the distribution of such spending in total across these 69 FP2020 countries in 2017. In the last few decades as in 2017, international donors and their directed efforts have significantly influenced the availability of modern hormonal contraceptives and strengthened the programs that enable the distribution of these commodities, provide information and counseling for clients, and fund clinical services such as those related to insertion and removal for certain modern methods or surgical permanent methods.

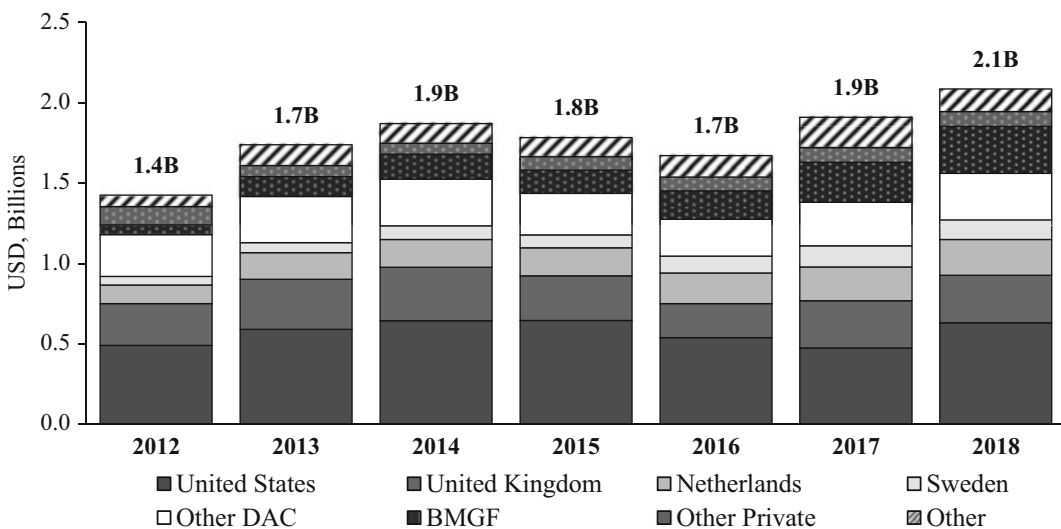


**Fig. 23.1** Distribution of family planning expenditure in the 69 FP2020 countries, 2017. (Source: Family Planning 2020 (FP2020); see <https://www.familyplanning2020.org>, accessed on January 25, 2021)

The largest multilateral funder in family planning is UNFPA, which distributed USD 356.2 million (41% of its total program expenses) to family planning programs in LMICs in 2018. Resources for UNFPA are contributed by member countries, and these contributions vary considerably. The U.S. has had a mixed history with the UNFPA, despite being actively engaged in its inception. In 19 of the 36 fiscal years between 1985 and 2020, U.S. government funding to UNFPA has been withheld as a result of invoking the Kemp-Kasten Amendment, enacted by the U.S. Congress in 1985. The amendment blocks funding to any organization determined by the Administration to be engaged in coercive abortion or forced sterilization. A related determination has been made under Republican administrations to block funding for the UNFPA, while the funding has been restored under subsequent Democratic Party presidencies. Some donor governments prefer to contribute to global family programs preferentially through UNFPA, such as Norway, which contributed USD 63.8 million to UNFPA’s core resources, while allocating USD 12.9 million in its bilateral funding for family planning. The U.S. in 2018 did not contribute to UNFPA, but allocated USD 630.6 million in bilateral funding for family planning.

Recent years have seen considerable growth in funding from private foundations, namely the BMGF, which has increased its annual contributions in this area from USD 61 million in 2012 to USD 291 million in 2018. That year, the BMGF spent more on family planning than any donor government other than the U.S. (USD 631 million) and the United Kingdom (USD 296 million). Figure 23.2 shows the increase in nominal terms of international donor funding for family planning programs in LMICs. The dependence on a few core donors including the BMGF raises concerns for sustainability. Disruptions to the funding allocations or priorities of any of these could dramatically reduce funds available to the programs of the poorest countries with high fertility. An example of the fragility of international development assistance, including to global health programs, is of the United Kingdom, which pegs its overall contributions to international development assistance as a share of gross domestic product (GDP), which can contract in an economic recession, and where the buying power of aid is linked to the strength of the British pound, which can fluctuate.

In response to the increasing levels of external funding in LMICs, mechanisms to anticipate total needs for family planning programs and the financing gap have improved. Costed Implemen-



**Fig. 23.2** International donor funding for family planning programs, 2012–2018. (Sources: Kates et al., 2019; BMGF, 2019; IHME, 2020. Note: DAC is the Development Assistance Committee (30 member countries))

tation Plans (CIPs) for family planning now typically outline a multi-year roadmap to help governments achieve program goals, such as specific percentage point increases in the mCPR. These documents include detailed estimates of annual activity costs and commodity procurement costs to help government make appropriate financial commitments. For example, Myanmar's CIP for 2015–2020 estimated a cost of USD 262 million for the five-year period, of which USD 182 million (70%) was for commodities, including contraceptives (mostly injectables) and related consumables. The non-commodity spending went to various strategies, including increasing the availability of high-quality services, generating demand and sustaining behavior change, improving performance of health workforce, etc. These results are typical of most CIP, though unit costs of service delivery and supportive interventions vary. Countries with extensive public health infrastructure and community extension workers can achieve greater scale of family planning service delivery at lower unit cost. Elsewhere, low population density or challenging geography raises the unit costs of logistics and distribution, including shipping and storing family planning products and consumables.

As Fig. 23.1 suggests, a significant funding source for family planning remains what clients spend out-of-pocket to access modern contraception, i.e., at the point of care or at the pharmacy. Many LMICs have a robust private market for family planning services and contraceptive products, and the latter may differ from the products at public facilities in catering to niche demand and offering brand value. With rising incomes in Asia, Latin America, and Africa over the last three decades, many clients can afford private sector services and products. However, for the lowest income clients, lack of access to subsidized or free services and products may mean either using no family planning methods or the use of a method they would not pick voluntarily as a first choice. These situations may lead to discontinuation of family planning method use and unwanted pregnancies, which could be

very disruptive to households and women's labor supply. Recent efforts in the family planning financing space focus on eliminating such out-of-pocket costs for the poorest quintiles of the family planning users through scaling up free/subsidized public provision, offering greater method choice, and easing other barriers to contraceptive use that could force out-of-pocket costs on clients who can less afford them. To free up budgets, governments have begun to better target the population segments they reach with subsidized or free services, which has the beneficial second order effect of encouraging private provision to those who can afford to pay and hence greater diversification of services and brands in the private market. Use of such market segmentation approaches is related to a "total market approach" in the family planning space.

If prepayment schemes such as health insurance covered a wide range of family planning services, out-of-pocket costs for the insured poor could be eliminated. However, in LMICs, health insurance generally plays a much smaller role in financing family planning expenditure overall or for the vulnerable, in part because employment-based insurance schemes do not cover the poor, and government subsidies to enroll the poor in such schemes have been slow to scale up. Separately, progress has been incremental in including family planning in the benefits of social or national health insurance schemes that do exist. Even when nominally included, family planning services are not always reimbursed and clients seeking care can be asked to pay out-of-pocket.

The large role played by external donors in family planning programs in LMICs has raised concerns about long-term sustainability. These concerns link to potential plateauing in the external funds for the area in the future, even with the recent entry of private philanthropic foundations and continued levels of bilateral financing from a few high-income countries. Political pressures and economic downturns in high-income countries may limit the total volume of overseas development assistance for health, and family planning is more susceptible to political pressure than other programs. The change in the political



party in power in the U.S. has had direct effects on where family planning funding can be directed and how it will be spent. Critics argue that the dependence of certain LMIC family planning programs on external financing limits the local ownership of the programs and leaves the programs directed by foreign priorities. Overall, greater effort is needed to raise domestic tax- and insurance-funded provision of family planning in LMICs.

### High-Income Countries

In high-income countries, financing for family planning includes out-of-pocket payments, private insurance, and public spending. Coverage of contraceptives varies considerably within Europe. In Germany, for example, use of contraceptives is considered a personal decision rather than a medical need and is not covered by the public insurance system. In the United Kingdom, however, fifteen different types of contraceptives are available free of charge to most people, and in France, social insurance covers 65% of the cost of most contraceptive methods and provides free contraceptives to females aged 12–17.

In 2015, public expenditure for family planning in the U.S. was USD 2.1 billion. Medicaid – which classifies family planning as a mandatory benefit – accounted for 75% of public funding for contraceptives. The rest was accounted for by state appropriations (13%), Title X (10%), and Temporary Assistance for Needy Families (2%). While the federal government matches state Medicaid contributions to family planning at 90% and prohibits cost sharing, a lack of specificity has allowed for considerable state-by-state variation in which family planning services are covered by Medicaid. For example, many states do not cover over-the-counter supplies and drugs, counselling, and sexually transmitted infection screening and treatment.

The U.S. has seen considerable debate around the responsibility to cover family planning services, especially regarding employer-

sponsored health insurance. These debates are relevant as the process continues apace to include family planning in burgeoning health insurance schemes of developing countries in Asia and middle-income countries in Africa. In 2011, a regulation from the U.S. Department of Health and Human Services (HHS) – commonly known as the “contraceptive mandate” – added contraceptives to the list of preventive services covered by the Affordable Care Act of 2010. In response to the Supreme Court’s 2014 decision in *Burwell v. Hobby Lobby*, the government agreed to negotiate with insurers to provide contraceptive coverage to the employees of non-profits and certain for-profit businesses that opted out of the mandate for religious reasons. However, some religious non-profits and for-profit companies believed this arrangement still made them complicit in the provision of contraceptives. In 2018, HHS – under direction of the Administration – allowed any employers to fully opt-out of the mandate on religious or moral ground. The regulation was upheld by the Supreme Court in 2020.

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### Financing Pronatalist Policies

While many LMICs are dealing with young, growing populations, other countries are experiencing population aging and decline. According to population projections from UNDESA, four global subregions experienced TFR below replacement (2.10) between 2015 and 2020: Europe and Northern America (1.66), Eastern and South-Eastern Asia (1.83), Australia/New Zealand (1.84), and Latin America and the Caribbean (2.04) (United Nations, 2019). These aggregates obscure some countries and areas with exceptionally low average TFR in the period, the lowest being South Korea (1.11), Taiwan (1.15), Macao (1.20), and Singapore (1.21).

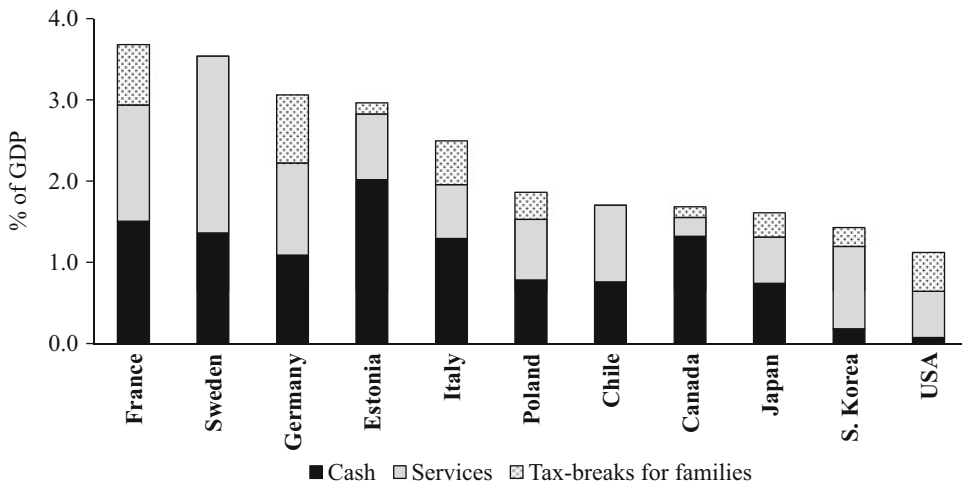
While a below-replacement TFR is mostly characteristic of high-income countries, such rates could become the norm in the not-too-distant future as LMICs see dramatic improvements in women’s access to education and modern contraception. The question has been asked whether

developing countries may “get old before they get rich” (Runde, 2020). The Institute for Health Metrics and Evaluation (IHME) at the University of Washington has forecasted that 151 countries will have a TFR under replacement value by 2050 and that 183 countries would meet this threshold by 2100 (Vollset et al., 2020). This baseline scenario predicts that the global population will peak at 9.7 billion in 2064 and decline to 8.8 billion in 2100. In an alternative scenario that accomplishes the Sustainable Development Goals (SDGs) for education and unmet need for contraceptives, the 2100 world population would be lower at 6.3 billion.

A lower fertility future could be well-managed and accompanied by population-level benefits such as reaping the demographic dividend for a period of time, with countries experiencing lower demand for and better access to social services. A lower fertility future may also be associated with women exercising their reproductive rights and enjoying ideal family size. However, current experiences of low-fertility countries tell us that populations do not age rapidly or even contract without significant social stress and potential economic headwinds. A top-heavy population

pyramid suggests a high dependency ratio and greater costs of elder care and pensions, which few countries are well prepared for. As the number of people in working age groups declines as a share, economies that do not adapt may face major challenges.

Rather than merely adapt to low-fertility demographics, some governments have adopted active policies and programs to increase fertility rates. In high-income countries, these policies and programs have been largely financed domestically. These governments have taken the approach of reducing the financial implications of childbirth and childrearing. Some pronatalist policies provide flat rate grants to reduce the monetary costs of having an additional child. Of course, the benefits and costs of having a child are not entirely economic, nor easily calculable in advance given the different needs young children can have. Though pregnant women and families do not use precise formulae to make such decisions, government transfers could help the pros outweigh the cons in at least some households, which theoretically pays off in fertility terms.



**Fig. 23.3** Public spending on Pronatalist benefits in select OECD countries, 2015. (Source: OECD, 2021. Note: Cash includes child allowances, support payments during periods of parental leave, and support payments to single-parent families. Services include

financing childcare and early childhood education facilities, earmarked payments to parents for childcare, assistance for young people and residential facilities, and family services. Tax breaks include tax exemptions, child tax allowances, and child tax credits)

Public spending on pronatalist policies can take many forms—from direct cash incentive payments to provision of services (see Fig. 23.3). Among the OECD countries, France dedicated the largest share of its GDP to public spending on family benefits in 2015 at 3.7% of GDP. Of France's public spending on family benefits, 41% was in the form of direct cash payment, 39% in free or subsidized services, and 20% in tax breaks. That breakdown varies considerably by country. In Sweden and Chile, for example, none of the benefits come in the form of tax-breaks. In other low fertility countries like Estonia and Canada, cash made up 68% and 78% of the benefits, respectively, while in South Korea, 71% was in services.

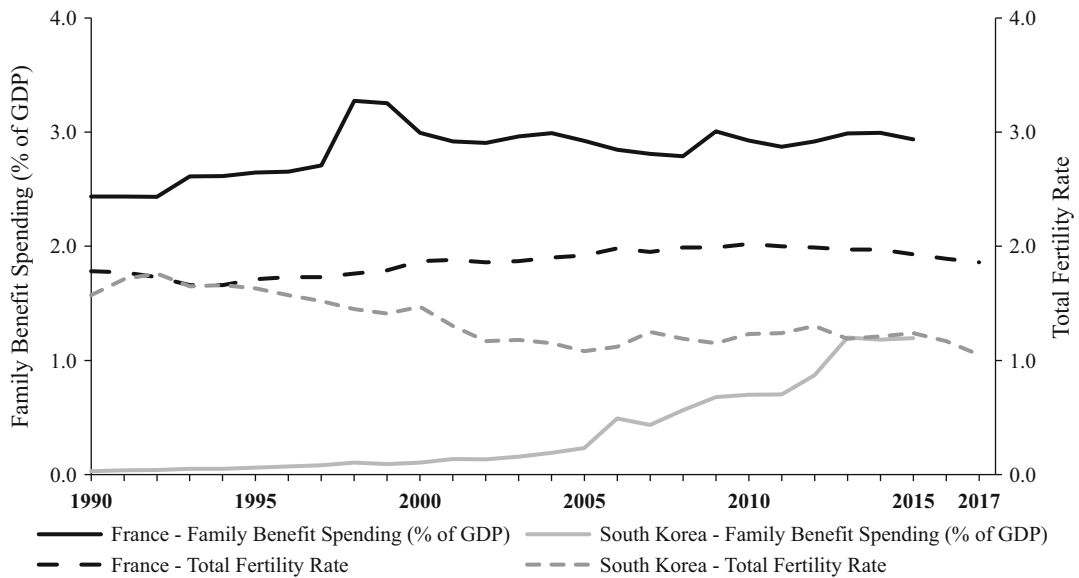
However, it is not clear if such public spending was effective in achieving the goal of increasing fertility rates. Since 2006, South Korea has spent over USD 165 billion on child allowances and subsidies for childcare and education, though the total fertility rate continued a steady decline. Though it is very difficult to model the past counterfactual, the investment at least did not pay off in terms of arresting fertility decline and population contraction. Other countries – Sweden, Germany, Estonia, etc. – have recovered from their lowest fertility points in the 1990s, yet their TFR remain far below replacement value.

An explanation for such disappointing results given the volume of investment may be inadequate targeting. If the government's only goal were to increase fertility, public spending should go to identifying and incentivizing couples or women for whom a birth would not happen without added incentive. With a universal benefit – e.g., free childcare or allowances for every child – a significant portion of the expenditure associated with the policies will not increase fertility. Many households will benefit without changing their reproductive decisions. Other households that already planned to have a child may shift the timing of the birth depending on their economic circumstances, i.e., have a child earlier than they otherwise would have, without increasing their total lifetime number of children. If common, such actions would only cause a transitory increase in the TFR.

For births to be encouraged with public spending requires identifying and affecting the commonest barriers that affect households with reproductive intention. For example, in many Southern European countries, there is limited childlessness but significant postponement of fertility, which can indirectly lead to smaller families (Billari, 2008). A policy solution to the low fertility problem in countries like Italy and Spain may therefore involve encouraging households to begin having children earlier. However, in Russia and other Central and Eastern European countries, there is a large share of one-child families without significant birth postponement. These countries may need specific incentives to promote family growth from one to two children and beyond.

Public spending on benefits for childcare and for young couples with children is not always or only pronatalist. Through such transfers many governments also target reducing inequality, improving economic outcomes for women, especially first-time mothers, and improving short- and long-term quality of life for children and their parents. For many societies – even those with low fertility rates – this may be the main benefit of universal programs and reducing spending for such programs would not be socially acceptable.

We look at two cases of active government intervention more closely, comparing France and South Korea (see Fig. 23.4). France has maintained a high fertility rate relative to other European countries, with some recent absolute decline. Spending on policies that have an explicit pronatalist bent has overall remained flat, with declines in certain tax benefits versus increases in the subsidies on childcare elsewhere. French demographers point to the impact of implicit policies and cultural shifts over the twentieth century, related to the social acceptance of diverse family arrangements, equality in employment opportunities and in gender relations, etc., which are influential in fertility-related decisions. However, in South Korea, while spending as a share of GDP has risen sharply, the TFR has continued its steady decline.



**Fig. 23.4** Family benefit spending and total fertility rates in France and South Korea, 1990–2017. (Source: OECD, 2021)

These experiences suggest the limitations of focusing only on government intervention via pronatalist policies and excluding social and labor market factors, especially with regard to women's status in families, attitudes towards child-rearing and availability of childcare services, and generosity of parental leave. In South Korea, the government has begun addressing the perceived demographic crisis more broadly with attempts to address gender equality and work-life balance. In 2018, the government allowed both parents to take parental leave at the same time and cut the maximum work week to 52 hours. South Korea already offered a KRW 600,000 (USD 547) allowance to pregnant women. In late 2020, the government increased this to KRW 1 million (USD 912) and doubled down on the monetary incentive channel of effect. It announced offering KRW 300,000 (USD 273) per month per infant in the first year of birth, beginning from 2022; this would rise to KRW 500,000 (USD 456) by 2025. This would be in addition to the existing cash incentive of KRW 100,000 (USD 91) per month for children under the age of seven, and a KRW two million

payment (USD 1825) to every household expecting a birth, also to be offered from 2022.

The effect of these policies on the South Korea TFR, which was at 0.92 in 2019, remains to be seen, though each of these policies should on the margin reduce the financial cost of birth and childbearing. However, other policy approaches exist for lowering the long-term opportunity cost of childbearing, including policies that facilitate women's return to work after short- or long-term maternal leave, or that reduce the cost of children's education and of larger housing. In this context, South Korea plans to offer a stipend of KRW three million (USD 2737) per person during three months of parental leave and is offering to cover university tuition for low-income families with more than three children.

Very little external donor funding has been directed to programs that actively promote fertility. However, significant development assistance is directed to maternal health, gender equality, and economic growth—all of which can have a secondary effect of encouraging childbirth in certain contexts. Part of the reason for this lack of external funding is that the countries with low

fertility rates tend to be relatively wealthy. Though fiscal constraints exist, these countries are not struggling with resource mobilization as much as determining how to spend the money. However, there are notable exceptions of LMICs with aging populations, such as Thailand and Vietnam (UNFPA, 2011). In these countries, external funding has been directed to passive responses to population aging and decline. Japan – applying its own experience with a rapidly aging population – has supported Thailand and Vietnam with elderly care.

Governments may not be the only source of funding for interventions that lower the opportunity cost of having children. Employers can offer better work-life balance, onsite childcare, paid parental leave, flexible hours, etc., which may reduce some barriers for employees to have children. It is likely that few employers have an explicit intention to raise fertility. The goal of such benefits is usually to attract and retain employees who may want to have children in the future. One exception is Japan, where several companies have offered benefits explicitly meant to encourage childbirth, reportedly the result of significant government pressure. For example, Softbank offers its employees “baby bonuses” which increase in value with each birth, while Panasonic, Canon, and Sharp offer financial aid to working mothers.

A key feature of any population policy is that it takes a long time to generate evidence on impact, and even so, direct attribution of policy cause and demographic effect is unlikely. Governments adopting multiple measures may be able to discern a shift in year-to-year births and will rely on demographic surveys to record a trend shift in reproductive intentions among women of reproductive age. Given the periodicity of such demographic data collection efforts, policies must be given sufficient time to affect indicators, and it is hard to defend adapting policies in the short term.

There is a growing body of academic literature on what policies have worked better to arrest fertility decline. Over time, using such evidence governments can choose policies other than those that restrict rights. This means, as an example, an end to the support from the Russian government to providers denying or dissuading abortion for

women, in contravention of the law giving a right to terminate a pregnancy up to twelve weeks for medical reasons.

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## Conclusion

Despite the domestic contentiousness of financing family planning in some donor countries, such as the U.S., such bilateral donors remain significant international financiers of LMIC family planning programs. With the growth in contributions from US-based private foundations and new donor governments, there has been a recent global surge in resources for family planning, including funds channeled through UNFPA. However, these funding levels may soon plateau, even as modern contraceptive prevalence and hence the need for products rises in low- and lower-middle income countries. Therefore, the need in global family planning financing is for increasing diversification of sources in LMICs, including national and local government budgets, health insurance schemes, and out-of-pocket purchasing by middle and upper classes to free up subsidies and donated products for poor and vulnerable clients.

The complexity of high and low fertility challenges across LMICs and high-income countries suggests limits to active policies that can affect demographic change in the timeframe favored by political actors. International migration in this context could act as a rebalancing mechanism, though most low fertility countries favor either highly skilled migration or none, which in demographic terms may be insufficient to address population aging and contraction. More recently, undocumented migration from LMICs to high-income countries in the wake of conflict and for economic reasons has become a significant topic of political debate, though levels of immigration in most countries have not yet been high enough to affect demographic trajectories. Only some high-income countries have favored broad-based immigration, such as Australia and Canada, where foreign-born individuals are 28% and 21% of the population, respectively. The potential for migration to be a rebalancing mechanism is

also not long-lived. Though migrants tend to be young, working-age adults, their fertility rates tend to match those of their host country within a single generation.

New modeling suggests world population growth is slowing at a faster pace than previously projected and peak population could be reached in the 2060s (Vollset et al., 2020). By 2050, 151 countries are forecasted to have TFR lower than replacement level. For example, India, a previously high-fertility country, has seen striking drops in fertility in just five years, with 19 out of 22 surveyed states in 2019 showing TFR below replacement in the National Family Health Survey (MoHFW, 2020). Globally, this is a combined effect of active government policies to moderate fertility through family planning as well as increased access to and use of contraception due to shifting cultural and market trends. Policies not actively pursued as related to population, such as female educational attainment and empowerment, also significantly contribute to these trends. As a result, the relative weight of LMIC governments' population policies and spending may shift over time from family planning to pronatalist interventions, depending on political and social perceptions of demographic change.

If total international financing stays at, or close to, current levels, and as more LMICs show declines in fertility, especially in south and south-east Asia as well as eastern Africa, more funding per capita could be available for family planning in the remaining high-fertility countries, especially in the Sahel, and west and central Africa. Elsewhere, as some LMICs "get old before they get rich", we may encounter a future where external and domestic governments have to simultaneously balance funding for increasing contraceptive access in some areas, both across and within countries, while funding programs to encourage fertility in other areas. Better and more targeted data will be required to fine-tune such policies to meet political and cultural ideas of

demographic change, population size, and structure. Whether financing for population policies can manage such a delicate balancing act remains to be seen.

## References

- Bernstein, S., Hardee, K., May, J. F., & Haslegrave, M. (this volume). Chapter 15: Population institutions and international population conferences. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Billari, F. C. (2008). Lowest-low fertility in Europe: Exploring the causes and finding some surprises. *The Japanese Journal of Population*, 6(1), 1–18.
- BMGF. (2019). *Annual Reports (2012 until 2018)*. Bill & Melinda Gates Foundation; see <https://www.gatesfoundation.org/Who-We-Are/Resources-and-Media/Annual-Reports>. Accessed on 25 Jan 2021.
- Cleland, J. (this volume). Chapter 27: The contraceptive revolution. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- IHME. (2020). *Development Assistance for Health Database 1990–2019*. University of Washington, Institute for Health Metrics and Evaluation; see <http://ghdx.healthdata.org/record/ihme-data/development-assistance-health-database-1990-2019>. Accessed on 25 Jan 2021.
- Kates, J., Wexler, A., & Lief, E. (2019). *Donor Government funding for Family Planning in 2018*. The Henry J. Kaiser Family Foundation; see <http://files.kff.org/attachment/Report-Donor-Government-Funding-for-Family-Planning-in-2018>. Accessed on 25 Jan 2021.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- MoHFW. (2020). *Fact sheets – National Family Health Survey (NFHS-5) 2019-20 – 22 States/UTs (Union Territories) from Phase – I*. Ministry of Health and Family Welfare.
- OECD. (2021). *Family benefits public spending*. Organisation for Economic Co-operation and Development; see <https://data.oecd.org/socialexp/family-benefits-public-spending.htm>. Accessed on 25 Jan 2021.
- Runde, D. (2020). *Will many developing countries get old before they get rich?* Center for Strategic & International Studies; see <https://www.csis.org/analysis/will-many-developing-countries-get-old-they-get-rich>. Accessed on 25 Jan 2021.
- Spoorenberg, T. (this volume). Chapter 16: Data collection for population policies. In J. F. May & J. A. Goldstone

- (Eds.), *International handbook of population policies*. Springer.
- Stukel, D. (2008). *Projected census dates, funding requirements and sources, and technical assistance needs for the 2010 round of population and housing census*. United Nations Statistics Division; see [https://unstats.un.org/unsd/censuskb20/Attachments/2008UNSD\\_CensusCosts-GUIDdc47d700bf4c49ab8418c75b79dfcc44.pdf](https://unstats.un.org/unsd/censuskb20/Attachments/2008UNSD_CensusCosts-GUIDdc47d700bf4c49ab8418c75b79dfcc44.pdf). Accessed on 25 Jan 2021.
- UNECE. (2014). *Measuring population and housing: Practices of UNECE countries in the 2010 round of censuses*. United Nations Economic Commission for Europe; see [https://unece.org/fileadmin/DAM/stats/publications/2013/Measuring\\_population\\_and\\_housing\\_2010.pdf](https://unece.org/fileadmin/DAM/stats/publications/2013/Measuring_population_and_housing_2010.pdf). Accessed on 25 Jan 2021.
- UNFPA. (2011). *The aging population in Vietnam: Current status, prognosis, and possible policy responses*. United Nations Population Fund Vietnam; see [https://vietnam.unfpa.org/sites/default/files/pub-pdf/Ageing%20report\\_ENG\\_FINAL\\_27.07.pdf](https://vietnam.unfpa.org/sites/default/files/pub-pdf/Ageing%20report_ENG_FINAL_27.07.pdf). Accessed on 25 Jan 2021.
- UNFPA. (2016). *Evaluation of UNFPA support to population and housing census data to inform decision-making and policy formulation (2005–2014)*. United Nations Population Fund; see [https://www.unfpa.org/sites/default/files/admin-resource/Evaluation\\_report\\_-\\_Volume.pdf](https://www.unfpa.org/sites/default/files/admin-resource/Evaluation_report_-_Volume.pdf). Accessed on 25 Jan 2021.
- United Nations. (2019). *World population prospects 2019: Fertility data*. Population Division; see <https://population.un.org/wpp/Download/Standard/Fertility>. Accessed on 25 Jan 2021.
- UNSC. (2012). *Report of the United States of America on the 2010 world programme on population and housing censuses*. Report prepared by the United States of America and presented at the 43rd Session of the United Nations Statistical Commission, 28 February–2 March 2012 (E/CN.3/2012/2); see <https://unstats.un.org/unsd/demographic/meetings/wshops/Korea/2012/docs/s03-1-1-UNSD.pdf>. Accessed on 25 Jan 2021.
- USAID. (2018). *Demographic and health surveys program: What we do*. U.S. Agency for International Development; see <https://www.usaid.gov/what-we-do/global-health/cross-cutting-areas/demographic-and-health-surveys-program>. Accessed on 25 Jan 2021.
- Vollset, S. E., et al. (2020). Fertility, mortality, migration, and population scenarios for 195 countries and territories from 2017 to 2100: A forecasting analysis for the Global Burden of Disease Study. *The Lancet*, 396(10258), 1285–1306. [https://doi.org/10.1016/S0140-6736\(20\)30677-2](https://doi.org/10.1016/S0140-6736(20)30677-2)
- World Bank. (2020). *Contraceptive prevalence, modern methods (% of women ages 15–49) – High income, low income*. World Bank Group; see <https://data.worldbank.org/indicator/SP.DYN.CONM.ZS?locations=XD-XM-XP>. Accessed on 25 Jan 2021.



# Measuring the Effectiveness, Efficiency, and Impact of Population Policies 24

Michele Tarsilla

## Introduction

*Population policies concern the key attributes of populations at any given time (including their size, age structure, spatial distribution) and the evolution thereof. More specifically, population policies focus on those variables that can alter such attributes, namely the changes in births (and marriages) and deaths – including deaths of children – and migration (Adapted from Paulet, 1994: 153–157).*

The breadth of such a definition gives a sense of how evaluating population policies is indeed a complicated endeavor. However, terminological challenges aside, a plethora of factors explain why measuring the effectiveness, efficiency, and impact of population policies has been for decades – and is still today – a particularly daunting task for both government and evaluation professionals.

On the one hand, policymakers in both the Global North and the Global South have tried to measure the results of their strategies and policies aimed to influence their population growth rates and outcomes. However, these evaluations have often served to “justify” government’s population policies and make them acceptable to the public rather than to independently assess their merit, worth, and significance.<sup>1</sup> In the absence of a strong scientific evidence base, population

policies and even population projections may have been the object of manipulations. In the case of population projections, this may have taken the form of the artificial increase of the percentage share of some ethnic groups over the total country’s population for the sake of enhancing their political representation in the national political arena. As a result, the findings and conclusions of population policies evaluations have been, more often than not, inherently biased and have, therefore, been contested for political and ideological reasons.

On the other hand, those managing or conducting population policies evaluations (either governmental agencies’ internal M & E units or external independent evaluation teams) have often lacked the necessary financial and technical capacity respectively to ensure that the final evaluation reports comply with the international evaluation standards and norms (Fournier, 1994; Gérard, 1994). In reality, governments have not even conducted proper evaluations of population policies but rather audit-like exercises with two primary objectives. First, their aim was to describe and verify the compliance of the activities on the ground (e.g., family planning awareness-raising activities) with a set of well-

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<sup>1</sup> It must be said that not all governments in the world have engaged in the development and roll-out of population policies: different countries, for instance in West and Central Africa have not shown much inclination to tackle their population issues over the past decades (May, 2017).



defined financial and administrative regulations. Second, another objective was to measure the short-term results associated with such activities rather than to explain the causalities and ascertain whether those very same activities led to impact level-results at the societal and systemic level. In addition, even when population policies evaluations were conducted, their geographical scope was rather narrow (e.g., the evaluation of population programs funded by foreign development partners in one or two regions of a country), thus hindering the wider applicability of their conclusions at the national level.

Because of all these limitations, it is not surprising that the findings and conclusions of population policies evaluations have not always been used as expected and that the implementation of the related recommendations has not been tracked and implemented as much as they should have.

Overall, the political motives underlying population policies evaluations as well as the rather scant financial and human resources made available to manage and conduct sound evaluations in this area have greatly undermined the effective contribution of evaluations to relevant conversations on strategic population issues at the country, regional, and global level. That is all the more striking given that understanding the negative impacts of population growth on the depletion of human and environmental ecosystems has become an imperative (Baus, 2017) and that the conduct of proper evaluations of population policy is beneficial to humankind.

It is exactly in response to such a rather bleak scenario that this chapter intends to bring some clarity back into the discussion around evaluation of population policies. In order to do so, the chapter first provides readers with a common understanding of basic evaluation and result-related terminology. This is expected to pave the way for a more informed, structured, and focused conversation amongst policymakers and evaluation professionals (e.g., demographers, reproductive health specialists, and civil society organization

involved in family planning) on how to better estimate the merit, worth, and social significance of population policies (Scriven, 1991).

Next, following an overview of evaluation's key definitional attributes (including what sets evaluation apart from monitoring, audit, and investigation), the chapter showcases the most commonly used evaluation criteria that would need to be taken into consideration when planning a population policy evaluation, with a special emphasis on policy impact. Furthermore, the chapter puts forward a conceptual framework and thirteen guiding principles to evaluate population policies. To this end, it focuses on methodological recommendations, including the evaluation methods and indicators that seem the most appropriate to be used when measuring the achievements, or lack thereof, of a population policy. Lastly, the chapter makes the readers familiar with a framework that could be employed to account for the unintended and unexpected effects, either positive or negative, of population policies.

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### **Key Definitions of the Different Levels of Measurement (Input, Outputs, Outcomes, and Impact)**

Policymakers and evaluation professionals have often discussed about evaluation without sharing a common definition. Moreover, they have not always made the necessary distinction between evaluation and other organizational functions, such as audit and investigation. Likewise, such terms as outcomes, outputs, results, and impact, have often been used interchangeably during the design and conduct of population policies evaluations, thus creating confusion about not only their real objectives but also the type of questions to be asked and the methods to be used in order to answer them. Therefore, it is essential that evaluation's distinctive attributes be understood (see Table 24.1) and that the technical "results terminology" be better owned, in

**Table 24.1** Evaluation: Key definitions and differences from other organizational functions

Terms	Definition
<b>Evaluation</b>	The systematic and objective assessment of an on-going or completed project, program or policy, its design, implementation, and results. The aim is to determine the relevance and fulfillment of objectives, development efficiency, effectiveness, impact, coherence and sustainability. An evaluation should provide information that is credible and useful, enabling the incorporation of lessons learned into the decision-making process of both recipients and donors. Evaluation also refers to the process of determining the worth or significance of an activity, policy or program. Evaluation encompasses an assessment, as systematic and objective as possible, of a planned, on-going, or completed development intervention. In some instances, evaluation involves the definition of appropriate standards, the examination of performance against those standards, an assessment of actual and expected results, and the identification of relevant lessons.
<b>Monitoring</b>	A continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing development intervention with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds.
<b>Audit</b>	An independent, objective assurance activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to assess and improve the effectiveness of risk management, control, and governance processes.
<b>Investigation<sup>a</sup></b>	Investigation examines and determines the veracity of allegations about misconduct or other irregularities affecting an organization, its projects, assets or personnel. Investigation is undertaken to ascertain fraud, corruption or other prohibited practices by an organization's staff members and vendors. It promotes fraud awareness by identifying and addressing high fraud risk areas and strives to protect human and financial resources.
<b>Control<sup>b</sup></b>	A managerial tool that helps entities (e.g., a department, program, institution or public agency, for example) to achieve their main objectives and maintain and improve their performance. The implementation of an "internal control system" enables these entities to effectively and efficiently develop management systems that adapt to changes in the economic and operating environment and aim to control risks by reducing them to acceptable levels.

Source: OECD (2010)

<sup>a</sup>Adapted from UNESCO (2017; see <https://en.unesco.org/about-us/ios/services/#investigation>, accessed on October 9, 2021)

<sup>b</sup>Translated from OECD (2016; see <http://www.oecd.org/mena/governance/le-controle-interne-et-la-gestion-des-risques-pour-renforcer-la-gouvernance-en-tunisie.pdf>, accessed on October 9, 2021)

par with the internationally agreed upon definitions, by those with interests and responsibilities in population policies evaluation. That is all the more relevant given that the rather broad and encompassing definitions of "results" adopted by policymakers in the past have often discouraged the planning of sound and focused evaluation exercises (see Table 24.2).

While the evaluation distinctive patterns are quite clear based on the comparison with other organizational function, the "results lexicon" presented in Table 24.2 is not so self-evident and could only be understood if applied to a real case. As illustrated in one of the reference publications on population policies (May, 2012),

the following results are to be attained in the same order as described so as to enable a decrease in fertility (see Table 24.3). Interestingly, a real-case application demonstrates how the OECD definitions are not exclusive but rather overlapping (outcomes with results and impact with effects).

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## Evaluation Criteria

In order for an evaluation to attain its two primary purposes, namely accountability and learning, and address its stakeholders' information needs, the work of the evaluation team needs to be

**Table 24.2** Key results terminology

Terms	Definition
<b>The most widely used results chain terminology</b>	
<b>Outputs</b>	The products, capital goods, and services which result from a development intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.
<b>Outcomes</b>	The likely or achieved short-term and medium-term effects of an intervention's outputs.
<b>Impact</b>	Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended.
<b>Additional terminology</b>	
<b>Results</b>	The output, outcome or impact (intended or unintended, positive and/or negative) of a development intervention.
<b>Effects</b>	Intended or unintended change due directly or indirectly to an intervention.

Source: OECD (2010)

**Table 24.3** Key results terminology in use: the case of a fertility reduction program

Terms	Definition
<b>Outputs</b>	More clients that have the proper information will visit functional health centers staffed with competent personnel and stocked with ample supplies The use of contraception (usually modern) increases. The change (increased use of contraception) will be measured by a performance indicator such as the contraceptive prevalence rate (CPR), i.e., the number of women aged 15–49 in union using a contraceptive method, divided by all women of reproductive age in union.
<b>Outcomes</b>	Higher levels of education (short- and medium-term outcomes) lead to higher levels of contraceptive use (medium-term outcomes)
<b>Results</b>	Fertility reduction, which is a result or outcome, may be ascribed, or not, to the specific intervention, i.e., the increase of the supply of, and information on, contraceptive methods. In the case of fertility reduction programs, annual percentage point increases of the contraceptive prevalence rate may be used as a proxy indicator. To this end, benchmarking against countries that have been successful in their family planning programs indicates that an annual 1.5 percentage points increase in the CPR is associated with positive outcomes.
<b>Impact</b>	Fertility levels decrease. As attested by rigorous evidence, due to higher CPR
<b>Effects</b>	Better child health. Higher aspirations for one's children.

Source: May (2012: 208–209)

guided by a set of norms or standards around which the evaluation questions are usually grouped. Such norms and standards are usually referred to as evaluation criteria. A review of specialized literature on population policies reveal that a variety of criteria have been used to evaluate them, often in compliance with the OECD/DAC guidelines which have recently added a sixth criterion (coherence<sup>2</sup> to the five criteria that it has traditionally recommended to use (relevance, effectiveness, efficiency, impact,

and sustainability). Below is a more in-depth explanation of how to use the six criteria if they were to be applied to a population policy evaluation.

### First Evaluation Criterion: Relevance

Within the scope of a population policy evaluation, this first criterion would help determining whether the population policy is doing the right things. This is consistent with the OECD definition according to which relevance indicates: “The extent to which the intervention's objectives and design respond to [the expected] beneficiaries’

<sup>2</sup> See <https://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm>, accessed on October 9, 2021.

global, country, and partner/institution needs, policies, and priorities, and continue to do so if circumstances change”.<sup>3</sup>

Should one want to assess the relevance of a population policy as per the OECD definition, one preliminary step is to select the “norms” that will account for what is “the right thing” and what is not. Unfortunately, the “norms” that were often used in the past to determine the relevance of a population policy and, therefore, to answer the question on whether the right things were being done or not, have not been merely technical (e.g., the degree to which the policy duly complied with the protocol to be followed during the roll-out of family planning activities), but rather political, ideological, religious, and economic. This has compromised the “objective” and “rigorous” determination of past population policies’ relevance and have introduced some inevitable biases that a sound evaluation needs to mitigate as much as possible. As a result, the type and quality of appreciation of population policies’ accomplishments and failures in the past mainly depended on the evaluators’ and respondents’ specific “background” and “perspectives”. As a result, the same population policy may have been regarded as “relevant” by Cairo Consensus supporters (who value individual freedom in relation to reproductive health behaviors) but deemed “irrelevant” by religious leaders and conservative segments of society. Likewise, a population policy providing for the intake of immigrants and refugees as a way to increase the country’s population size and stimulate fertility rate over time, may have been labeled as “relevant” by pro-immigration political parties but contested, and therefore, deemed irrelevant, by nationalist groups.

However, relevance could also be measured in relation to the social norms and concrete demographic trends. The imposition of the

neo-Malthusian approach (“reducing fertility rates is a must – also through the use of contraception – in order to avoid environmental degradation and better benefit from the existing resources which are naturally finite”) may have worked in Latin America and Asia (as well as in Europe where it started), but not in sub-Saharan Africa where fertility rates still remain high.

## Second Evaluation Criterion: Effectiveness

The effectiveness criterion, which is probably the most widely used amongst the six criteria recommended by OCED/DAC, allows determining whether the population policy is achieving its expected objectives. This second criterion is consistent with the OECD definition according to which effectiveness contributes to measuring: “The extent to which the intervention achieved, or is expected to achieve, its objectives, and its results, including any differential results across groups”.

Often exchanged with another evaluation criterion (i.e., impact), the effectiveness criterion has often led to inaccurate conclusions on population policies’ real added value. To this end, the following observations are critical for a more just appreciation of this specific criterion:

- An effective population policy is not automatically an impactful policy;
- An effective population policy is simply a policy that demonstrates to have attained the results that were originally envisaged at the time it was launched. However, effectiveness does not look at whether those objectives were justified or in sync with the contextual needs or the aspirations of the people on the ground (the relevance criterion will help assess that);
- Fertility decline is erroneously mentioned as an “effectiveness criterion” in much of the contemporary specialized literature on population policies. In reality, this is an “indicator”, that is a variable measuring change, not a criterion. Furthermore, “fertility decline” appears to be quite a generic indicator.

<sup>3</sup> According to the OECD Guide on Evaluation criteria, the term “beneficiaries” is defined as, “the individuals, groups, or organizations, whether targeted or not, that benefit directly or indirectly, from the development intervention.” Other terms, such as rights holders or affected people, may also be used.

In reality, for it to become useful to population policymakers, this indicator should become “SMART” (specific, measurable, achievable, relevant, timely) and refer, for instance, to the specific population group(s) whose fertility is expected to be reduced over time.

- Measuring effectiveness includes the identification of factors either contributing or hindering the attainment of the envisaged results, both within and outside the sphere of competence of those running the population policy (see Box 24.1).

**Box 24.1: Examples of Factors Contributing to the Decline in the Fertility Rate**

Barriers to achieving population policies’ objectives could vary: geographical, medical, cultural, and financial, and can be linked to the poor status of women, lack of choice of methods, and fear of side effects (Campbell & Stanley, 1966). Addressing such barriers is critical, as attested by some specialized literature. A study in Nepal, for instance, showed that the distribution of contraceptive methods by non-government services, the high quality and level of information disseminated, the one-to-one counseling modality, the level of users’ satisfaction with services, and the shorter travel time to access supplies, have often been associated with lower odds of contraceptive discontinuation (Gubhaju, 2009: 66 & 68–69).

### Third Evaluation Criterion: Efficiency

This third criterion helps gauge how well the population policy resources are being used. This is consistent with the OECD/DAC definition according to which efficiency helps measure “(t)he extent to which the intervention delivers, or is likely to deliver, results in an economic and timely way”. When assessing the efficiency of population policies, there are two types of evaluation approaches that could be employed. First, one may want to use a “technical” efficiency

evaluation, which may assess the results of a population policy by comparing the costs (for instance, costs of contraceptive and related communication campaigns) and the observed benefits (for example, number of averted births and subsequent gains in education level). Second, one may want to adopt an “allocative” efficiency evaluation, which would appreciate the level (quantity), adequacy (quality) and the rapidity of deployment (timeliness) of resources made available during the roll-out of a population policy, based on a prioritization of the most effective approaches. Contrary to the prevailing financial focus of efficiency evaluations conducted in the past, this specific criterion pertains, too, to the human resources employed well as goods/supplies distributed during the roll-out of the population policy under evaluation. Therefore, a good question on efficiency to be included in any evaluation should be as follows:

*To what extent were:*

- *the financial resources sufficient and made available in a timely manner?*
- *the human resources qualified and deployed in a timely manner?*
- *the supplies relevant in quantity and quality to attain the policy objectives and distributed to the right individuals/households/communities in a timely manner?*

Questions under this criterion could also be combined with other criteria, such as the one on equity, gender, and human rights. As a result, a possible question that could be included in the Terms of Reference (ToRs) of a population policy evaluation is the following:

*To what extent was financial support (a) provided to households to incentivize natality (b) equally distributed regardless of the income level; or (c) offered to lower-income households? (Thévenon, 2014: 55).*

Some ideas could be developed further as needed. There are two additional key variables that should be looked in relation to this specific evaluation criterion:

- The increase in efficiency and productivity and the redistribution of resources (see the Indonesia case) (Behrman & Knowles, 1998); and
- The benefits of reproductive health and family planning programs (e.g., the benefits incidence in Vietnam).

Overall, there are two main frameworks that could be used to evaluate the efficiency of population policies: the standard economic framework and the cost-benefit analysis.

#### **Fourth Evaluation Criterion: Sustainability**

This fourth criterion allows determining whether the benefits of population policies (on the social, financial, and environmental fronts) will last over time. The OECD/DAC definition qualifies this criterion in more details and, recognizing that it is not always possible to gauge how the situation will evolve after the interruption of activities on the ground, contemplates that evaluators could also make conclusions on the extent to which the net benefits of the intervention continue, *or are likely to continue*". More recently, any evaluation of population policies including questions on sustainability should also assess to what extent the policies in question either produced negative repercussions on the environment or enabled the implementation of activities aimed at protecting the environment.

#### **Fifth Evaluation Criterion: Impact**

This fifth criterion, probably the most widely discussed and often misunderstood of the six OECD/DAC criteria, allows determining whether the population policy made any difference that is directly or indirectly imputable to it. The OECD/DAC definition is as follows: "(t)he extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level effects". Assessing the impact of a population

policy is a particularly complex task and several factors are to be taken into account when addressing questions about impact. One of them is the so-called "program placement bias" (World Bank, 2007), whereby the effects of a given population policy interventions may be overestimated or underestimated as the interventions being evaluated are often implemented in countries' areas where the needs are greater. Likewise, when opting for this specific criterion in a population policy evaluation, one should:

- Consider the related data collection costs (often quite high) in light of the available resources;
- Recognize the need for upfront planning and take all the necessary steps to ensure the timely conduct of a baseline and end-line;
- Appreciate the limitations of the questions that lend to be addressed by the so-called impact evaluations (often quite narrow and linear); and
- Understand that highly impactful – yet expensive – interventions are not likely to be replicated and are, therefore, of dubious quality
- Develop an adequate theory of change and outline causal pathways that are informed by evidence (e.g. average effect sizes attained by past population policies, specific sequencing and timing of activities successfully leading to a decline in fertility rate) .

As drawing on existing data pertaining to the impact of evaluation policies is critical for the successful design of any impact evaluation, a brief review of what specialized literature in this regard may be useful. Unfortunately, the documented effects of population policies over the years seem rather modest. Between the 1990s and the 2010s, the reduction in both mortality and fertility rates as a result of the implementation of population polices, has been lower than expected. Overall, studies in Asia, Latin America, and sub-Saharan Africa estimate the dampening effect of family planning programs on lifetime fertility at between 0.5 and 1.5 children, but most studies point to the lower end of this range. Effects differ depending on the length

of exposure to the program and its intensity and implementation effectiveness (Banerjee & Duflo, 2011: 112). Likewise, population polices have often not contributed to economic growth as initially projected. Furthermore, the contraception use rate has remained quite low in many sub-Saharan African countries despite the numerous efforts made in this area (see Chap. 8: *Sub-Saharan Africa: Slow Fertility Transitions Despite Policy Efforts* of this *Handbook* [Bado et al., [this volume](#)]). This is also due to the fact that in such countries as Burkina Faso, Mali, and Niger, for instance, governments gave priority to the management of pregnancies and births, obstetric and neonatal emergencies, and HIV/AIDS prevention and care. This was done to the detriment of the prevention of high-risk pregnancies, the exercise of reproductive health rights, and the access to quality family planning and reproductive health services (Guengant, 2011).

Furthermore, while Ouédraogo (2008) admits the reduction in fertility rate in sub-Saharan Africa over the 1990s and the 2000s, concurrently with the roll-out of population policies, he also denounces that mortality rate has not decreased as expected.<sup>4</sup> While the failure in leading to a

<sup>4</sup> Overall, fertility has been declining since the 1990s. Ouédraogo (2008) provides a very detailed account of the demographic trends in sub-Saharan Africa between 1970 and the late 2000s, and tries to explain the link existing between them and the population policies introduced across the continent, both during the first wave (1980s) and the second wave (late 1990s). Overall, the annual rate of natural population growth slowed from 2.8% in 1970–1974 to 2.3% in 2000–2004. However, considering that the population policies started being implemented in 1990–1994 and that the rate of decline of the birth rate remain unchanged (3.2 points, both between 1990–1994 and 2000–2004) if compared with the period preceding the roll-out of the policies (between 1980–1984 and 1990–1994), one may conclude that such population policies did not have an impact on birth rates. What is more striking, though, is that, despite the implementation of these policies, mortality rate increased by one point between 1990–1994 (16.2‰) and 2000–2004 (17.2‰). To the contrary, in the absence of such population policies, mortality decreased by 1.1 points between 1980–1984 and 1990–1994. In the sub-Saharan African region, this slowdown seems to have been more linked to the decline in fertility without the intermediation of a consequent

decrease in mortality rate (e.g., the deaths in question were mostly due to preventable diseases) highlights the deficiencies of the reproductive health rights paradigm, the shrinking family size in the African continent during this period could not only be attributed to the introduction of population policies but rather to a constellation of initiatives and strategies (e.g., poverty reduction, widening education access, improving women's access to services, etc.). Given the rather complex nature of this criterion and the paucity of the literature specifically dedicated to the evaluation of population policies' impact, the next section will present three of the most common approaches used in this area.

## How to Evaluate the Impact of Population Policies: Three Key Approaches

### Evaluating Impact by Using Correlation Analysis: The Taiwan Case

As done during the evaluation of Taiwan's family planning program, one possible approach to evaluate the impact of a population policy is to analyze not only the interactions existing amongst individual reproductive behavior, surrounding environment and public policy, but also the correlation between these three variables and the variations in birth rates in the specific geographic area of interest. In the case of Taiwan, for instance, such correlation analysis was undertaken across 361 small administrative regions of Taiwan from 1964 to 1968. The main findings of the evaluation included the following:

- Strong evidence was found for the importance of the constraints and opportunities of the parents' environment (school enrollment rates and child mortality) in explaining diminishing birth rates;

decrease in mortality: the decrease from 2.7% to 2.3% in the annual growth rate between 1990 and 2000 was due more to the decline in the birth rate (3.2 points between 1990–1994 and 2000–2004) than to the decrease of mortality.

- Direct assessment of the impact of the family planning program on birth rates was shown to imply very different conclusions for policies than those of indirect studies of contraceptive adoption rates; and
- The program's direct impact on birth rates was initially greater than earlier studies had indicated, but the program was also subject to diminishing returns to scale.

### **Evaluating Impact Through Randomization and Counterfactuals: The Case of Matlab Randomized Controlled Trial**

This second approach was used to evaluate the impact of the family planning and maternal and child health (FPMCH) program in the Matlab region of Bangladesh in the 1970's (ICDDR, B, 2006). In order to estimate the effect size of this program with a relatively higher degree of credibility than a correlation analysis (see the Taiwan case already discussed), a Randomized Controlled Trial (RCT) design was used. To this end, three strategies were implemented. First, the evaluators ensured that the interventions being evaluated be implemented amongst a clearly defined group of individuals/households (referred to as "treatment group"). Second, the evaluators made sure to identify a second group (comparable in size to the first group) of individuals/households not "receiving the intervention" (referred to as "control group"). It is worth mentioning that, contrary to the RCT definition, the villages participating in this evaluation were not "randomly" identified (they were selected based on their contiguity/physical proximity). However, once identified based on geographical criteria,<sup>5</sup> they were "randomly" assigned to either the treatment or the control group.<sup>6</sup> Third, evaluators planned their work so that both groups (treatment and control) would be

followed over time and that the variables of interest (fertility rate, contraceptive rates, attitudes towards family planning, etc.) be measured and compared (see also Fauveau et al., 1991; Joshi & Schulz, 2007).

Overall, a combination of census and survey data was opted for. First, any change in attitudes and behavior amongst the women in the treatment group was measured over time. Second, in order to measure any change amongst the women in the control group (79 villages), census data were collected in all villages (treatment and control) at four different time intervals: 1974, 1978, 1982, and 1996 (in this last case, it was not a Census but a Health and Socio-Economic Survey – known as MHSS – that used the impact evaluation sample). This methodology made it possible to evaluate long-term welfare effects of family planning and health outreach efforts at the household level.

### **Evaluating Impact by Focusing on Human Agency and Determinism: The Case of Fertility Choices and Gender-Responsive Programming**

When assessing the impact of a population policy, evaluators are often tempted to jump to the conclusion that the implementation of population-related activities and interventions on the ground lead to the production of medium- and long-term effect directly attributable to them. Needless to say, this is not a very rigorous modality to make inferences on what really works and what does not. In some other cases, though, population policies experts have tried to better qualify some of these "success claims". In their in-depth research on the primary determinants of actual

<sup>5</sup> This specific methodological choice inevitably introduced a selection bias, which was never studied as much as it should have. In any case, one possible strategy to better analyze the magnitude of such bias is to compare such variables (e.g., fertility) between treatment and control group right before and after the introduction of the intervention.

<sup>6</sup> Field workers paid visits to all women of childbearing age in the treatment group (180,000 women living in 70 villages) every 2 weeks and provided them with a variety of services: from contraceptive methods, to supplies and advice. Supplementary child and maternal health services were integrated into the package rendered to the women participating in the program. Instead, women in the control group did not receive any visits but they had to go to the local health centers to receive assistance from the regular health and family planning personnel.



fertility, Ambrosetti et al. (2019) for instance, identify that men's and women's *fertility choices* are critical factors impacting on the actual increase or decrease of births within households. In doing so, they also recognize that these fertility determinants are conditioned and constrained in turn by the social, educational, cultural, and economic conditions they face. Furthermore, some other contemporary work attest to the fact that population policies improving women's living conditions (e.g., by raising their income, education level, and overall empowerment), are probably amongst those that most plausibly cause changes in countries' fertility rates (see Box 24.2).

**Box 24.2: The Case of Ethiopia**

The population policy launched in Ethiopia launched in 1993 entailed several targets to be achieved by 2015. The total fertility was to be reduced by nearly 50%, from 7.7 to 4.0 children per woman. Likewise, the contraceptive prevalence rate (4.8% in 1990) was to be increased to 44%. The policy also intended to reduce infant and child mortality rates as well as maternal mortality, and to increase female participation at all levels of the educational system. The policy proposed the elimination of all legal and customary practices affecting women's economic, social, and political rights. The policy also incorporated an ambitious program of measures to guarantee spatially balanced population distribution patterns and to improve productivity in agriculture, introducing off-farm non-agricultural activities. The policy also proposed the launching of a country-wide population information, education, and communication program since the policy was launched, all the relevant demographic indicators – Total fertility, the population growth rate, infant and child mortality, and maternal mortality –

Show that substantial progress has been made towards achieving key policy targets. (Source: Ambrosetti et al., 2019)

### Sixth Evaluation Criterion: Coherence

This sixth and last criterion allows determining whether the population policy fits with the context where it is being implemented. This is consistent with the OECD/DAC definition of this relatively newer criterion, according to which coherence measures “the compatibility of the intervention with other interventions in a country, sector or institution”. Given that population policies are often implemented nationwide, variations across provinces and regions within a country are often limited, more so in authoritarian states. That said, donor-funded family programs, often implemented in a few regions and provinces, lend themselves to being the object of evaluation questions inspired by this criterion.

### Methodological Considerations: The Need for a Solid Conceptual Evaluation Framework and Thirteen Guiding Principles

Based on the realization that a commonly agreed conceptual framework to evaluate population policies does not exist, this chapter attempts to provide the readers with a solid understanding of some of the theories and variables that seem to best contribute to measuring the merit, worth, and significance of population policies. To this end, the chapter is articulated along two axes. First, it identifies the key tenets of some of the most popular frameworks used to assess the results of population policies in the past and accompanies the reader step-by-step in constructing a new, more holistic framework. Second, it enriches the newly created framework with some of the global

fundamental principles spelled out in some of the most widely ratified conventions, such as the Cairo Consensus as well as the 2030 Agenda for Sustainable Development.

### **Guiding Principle #1: Any Framework Attempting to Evaluate a Population Policy Needs to Embed Population Policies Within a Broader Agenda**

One of the key premises for evaluating population policies is to have a conceptual framework of reference. In this very case, population policies ought to be understood as part of a broader reproductive health framework aiming at the attainment of three distinct goals to be pursued at three different levels:

- Women’s empowerment (to be pursued at the individual level): women with more schooling will face a higher price for having a child, because the opportunity costs of the mother’s time for child care is more valuable to the household. This effect on the price of children may dominate women schooling’s effect on their income, and thereby may explain why better educated women tend to have fewer children, holding other resources constant (Schultz, 2002). A second hypothesis for why better educated women have lower fertility is that they evaluate and adopt new improved forms of birth control more rapidly and/or at lower cost, which leads them to avoid more unwanted births.
- Voluntary family planning (to be pursued at the household level)<sup>7</sup>; and
- Improvement in maternal and child health (to be pursued at the community/societal level).

<sup>7</sup> Family planning was the most widely used strategy pursued by the countries in the 1960s that started rolling out their population policies (Indonesia, Pakistan, South Korea, Sri Lanka, and Thailand) (May, 2012). It still remains as the most widely used strategy to address the proximate determinants of fertility.

Such articulation of the population policy discourse came about gradually, concurrently with the organization of international population conferences (Bucharest in 1974, Mexico City in 1984, and Cairo in 1994). It was in such international fora that the idea of more holistic approach to (mitigate population growth rates came about and that greater emphasis started being placed over individual concerns rather global targets. Thanks to the deliberations of such gatherings, it became increasingly clearer that population policy was not only about family planning but rather a constellation of complementary strategies to be pursued on multiple fronts (May, 2012).

In light of all the above, for an effective evaluation of a population policy to take place, it is important to estimate simultaneously the effects produced by different strategies/approaches (Thévenon, 2014). Only then, it would be feasible to estimate more accurately, yet not completely, the contribution of population policies to changes in fertility rates in any given country. The challenge, though, is that population policies are not always referred to in the development plans or other development strategies (Guengant, 2011). As population policies were often reduced to mere family planning strategies aimed at reducing fertility, the individuals and entities – both at the national and sub-national levels – concerned with the other strategic axes of these policies (e.g., morbidity and mortality, and the general mortality, the condition of youth and children, migration and urbanization) gradually disengaged from their implementation. The introduction of the Poverty Reduction Strategy Papers (PRSPs) also eclipsed population policies.

### **Guiding Principle #2: A Population Policy Evaluation Framework Needs to Be Principled**

Past evaluations do not seem to have adequately accounted for the differential effects that population policies have on different population groups or individuals, due to systematic differences existing amongst them in light of their specific area of residence, gender or age (Ouédraogo,

2009). While this may have been the norm until a few years ago, the advent of the 2030 Agenda for Sustainable Development (grounded on the principle of “leaving no one behind”) does not longer make it acceptable. Hence, the conceptual framework underlying any population policy ought to be “principled”. Otherwise said, the implementation of the activities and strategies described in the population policy evaluation framework should not compromise the human dignity or do harm to any of the individuals/populations which they are aimed at. Likewise, the assumption that a population policy will promote equity and not “leave anyone behind” (as per 2030 Agenda for Sustainable Development), will need to be systematically monitored over time.

There have been dire examples indeed of how population policies have not always been ascribed to such principles. The relative failure of voluntary family planning programs in South Asia (India and Pakistan), for instance, led policymakers to roll-out coercive policies (Wilson, 2018). In this very case, it was normative – rather than policy-driven or evidence-based – assumptions of fertility decline that underlined such interventions. The forced sterilization program launched by the Indian government during the “Emergency” period in 1975–1977 is also a clear attestation of that. Likewise, the case of China’s One-Child policy started and the eschewed boy/girls ratio at birth (resulting from the abortions of female fetuses and infanticides or abandonment of girls at birth) observed during its implementation (1979–2015) (Wang, 2010) reminds us of how population policies have not always taken basic human rights into consideration during the design phase, as per the Montevideo Consensus.<sup>8</sup> The relevance of principles in the set-up and roll-out of population

policies is also promoted in some of the most salient normative work existing nowadays. The Reproductive Rights Framework, developed by the Center for Reproductive Rights (2003), upholds four guiding pillars: human rights, a holistic approach to reproductive health, women’s advancement, and adolescent issues.

### **Guiding Principle #3: A Population Policy Evaluation Framework Needs to Account for Both Biological and Behavioral Determinants of Fertility**

According to the Boongaarts model of the proximate determinants of fertility (PDF), fertility could be explained by two sets variables (Bongaarts, 1978). First, there are biological variables (permanent sterility, the probability of conception, and intrauterine mortality) that do affect the actual rate of reproduction within a given country’s population but do not really impact trends in fertility. Second, there are behavioral proximate variables (e.g., patterns of union formation, the prevalence of contraceptive use,<sup>9</sup> contraceptive effectiveness, duration of breastfeeding, and the recourse to induced abortion) that do determine – sometimes more substantially – trends in fertility. Factors that affect mortality and fertility directly (also referred to as “direct determinants”) include pathogen agents of infectious diseases as well as vectors that carry infections (e.g., mosquitoes). Therefore, a framework that seeks to evaluate population policies will need to account for both sets of variables, biological and behavioral.

Interestingly, the natural fecundity rate (biological maximum estimated at 15.3 children on average) may be indeed be affected by the behavioral proximate determinants of fertility, such as: (i) marriage and frequency of sexual

<sup>8</sup> The Montevideo Consensus focuses, among others, on youth issues, including: preventing teenage pregnancy and eliminating unsafe abortion; strengthening social security and social protection for older adults; and including international migration and the protection of migrants’ human rights in the post-2015 development agenda (see Chap. 10: *Population Policies in Latin America and the Caribbean: From Carmen Miró to the Montevideo Consensus* of this Handbook [Guzman, this volume]).

<sup>9</sup> According to Ambrosetti et al. (2019), the utilization rate of contraception in the world has grown over the years. Back in 1974, 26.5% of women used a contraceptive method (traditional or modern). Thirty years later (2014), this figure more than doubled (58.5 percent). Likewise, the proportion of women with unmet need for contraception dropped by 50% (from 23% in 1992 to 12.6% in 2014).

interactions; (ii) postpartum infecundability (temporary infertility occurring because of breastfeeding and postpartum abstinence); (iii) induced abortion; (iv) sterility; (v) contraception; and (vi) natural fecundity. Furthermore, there are some additional determinants (referred to as “intermediate” or distal determinants) that influence the behavioral determinants and, as a result, influence indirectly both fertility and mortality. These include urbanization, labor participation, income, education (female education), and women’s status. Overall, these “intermediate” determinants take longer to evaluate (May, 2012). In this vein, using the Cairo Consensus (which places higher emphasis on individuals’ desires) rather than the “classic” national population policy as the framework of reference, could be a valid conceptual option to consider. However, the right mitigation strategy ought to be put in place.

#### **Guiding Principle #4: A Population Policy Evaluation Framework Needs to Rest on the Use of Mixed Methods**

In order to better understand the progresses of population policies over time, both quantitative and qualitative methods will need to be used. Therefore, along with the measurement of fertility rates and contraceptive use rates (through medical records and ad hoc surveys), a variety of qualitative methods will need to be employed to better address the following critical questions:

- the HOW question, that is, what are the processes characterizing the implementation of population policies;
- the WHY question, that is, what are the factors that best explain changes, or the lack thereof, during the roll-out of the population policy;
- the FOR WHOM question, that is, for whom or amongst what population groups (e.g., the group in the highest or lower quintile) the population policy seems to have brought

change and of what type (positive or negative); and

- the UNDER WHAT CIRCUMSTANCES question, that is, what are the necessary and sufficient conditions for the population policy to produce a certain envisaged result.

Quantitative methods allow the collection of data on a large scale through the use of standardized instruments. Their primary objective is to gauge “average” effect size and trends from within a large number of individuals/households and/or communities. Their purpose is primary confirmatory: otherwise said, they are aimed to verify whether their hypotheses and understanding of reality are sufficiently sound (e.g., see the different response options to survey questions that women being surveyed on their reproductive health are expected to pick from). Instead, qualitative methods are more exploratory in nature and, rather than aiming to capture the “average” effects of any given policy, they focus on the “uniqueness” of people’s lived experiences (fewer units of analysis if compared with the quantitative methods), in line with what literature calls “thick description” (Stake, 2003). Through purposive sampling (e.g., equity-based sampling), qualitative methods intentionally attempt to depict how the most marginalized and vulnerable have been affected by a population policy.

In his study of the barriers to the implementation of the population policy in Senegal, Diop (1994) for instance, was able – through the use of qualitative methods – to identify the ambitious nature of the policy’s envisaged objectives, the low motivation of governmental agents, the absence of population awareness-raising, the differences of opinions on what was relevant amongst service providers, and coordination issues. Likewise, Toto (1994) stressed the factors that hindered the successful implementation of the population policy in Congo, namely, the rather low degree of the government leaders’ engagement in population “control” strategies as well the socio-cultural resistance to family planning efforts. Ahade (1994), too, used

qualitative methods to better understand the effectiveness of the communication campaign implemented in Togo in the early 1990s to increase the use of contraceptive methods and reduce fertility rates. This work highlighted the beneficial role of community social mobilizers as well as the lack of adapted/consistent messages across all campaigns, the opposition of certain groups, a certain political hesitation, and the lack of coordination among some of the key communication campaign stakeholders.

Far from playing a purely ancillary role to quantitative methods (e.g., quotes from respondents), qualitative methods have gained increasing recognition over the years, thanks also to the accrued use of rigor associated with them (e.g., the use of qualitative data analysis software, more systematic and predictable way to perform content analysis, and coding and interpretation). While authors have often talked about “mystery clients” as one of the most effective qualitative data collection strategies (May, 2012), the evaluation toolbox in this specific domain of work is more eclectic and deserves more in-depth review.

### **Guiding Principle #5: The Evaluation Approach Adopted Within the Scope of A Population Policy Evaluation Framework Needs to Respond to Context-specific Information Needs**

While most evaluations have been traditionally conducted at the end of a given intervention (after several years of implementation in the case of a population policy), there is a plethora of evaluation approaches that one could select from in order to evaluate population policies and that set themselves apart from the classic examples of “one-time-off evaluations”, such as:

- Realist evaluations, which test whether the reasoning – and assumptions- that prompted the population policy (e.g., the theory of

change) was well justified in light of the existing resources, opportunities, and constraints associated with the environment where the policy is set to be implemented; or

- Developmental evaluations, which tend to last over a longer period of time and, instead of holding the Theory of Change (the visualization of the expected changes over time with details on what is needed for them to occur according to the identified causal pathway) as a finite and solid reference, aim to modify it based on emerging evidence and stakeholders’ information needs. In this kind of evaluation, evaluators are not as distant as is normally the case of other more traditional evaluations. In this case, evaluators play the role of “critical friends” and accompany those very same programmers and decision-makers who are responsible for the planning and implementation of the population policy.

All these examples go beyond the traditional “beneficiaries and providers’ assessment” often used in past population policies assessment (May, 2012: 234).

### **Guiding Principle #6: A Population Policy Evaluation Framework Needs to Rest on a Solid Theory of Change Whose Pathways of Change Account for Complexity and Whose Assumptions Are Monitored on a Regular Basis**

For instance, the assumption that better quality of family planning services leads to increased use of contraception in any given county is to be tested. Otherwise, it remains faulty and unverified. In any case, as any population policy interact with other dynamics and policies (May, 2012), measuring the effectiveness of a family planning program implemented in any given county at any point in time is particularly difficult.

### **Guiding Principle #7: A Population Policy Evaluation Framework Needs to Take Equity into Account**

Any population policy evaluation will need to estimate the degree to which equity and ethics have been taken into consideration during the planning, implementation and monitoring of activities and strategies implemented as part of a population policy.

### **Guiding Principle #8: A Population Policy Evaluation Framework Will Needs to Systematically Assess the Four Dimensions Around Which any Population Policy Is Articulated**

Any population policy evaluation will need to center around the four following constructs:

- Size (Immigration)<sup>10</sup>
- Growth (birth control, limitations of birth)
- Distribution (migration or displaced population)
- Composition (promotion of certain ethnic groups or of a certain age distribution)

### **Guiding Principle #9: A Population Policy Evaluation Framework Will Needs to Assess Results at Multiple Levels and Over a Rather Wide Timespan**

As par the case of the India's Population Policy, for instance, a population policy may pursue the three following objectives over a period of 10 years:

- Short-term: increase of contraceptives use
- Medium-term: decrease in fertility rate

- Long-term: reaching stable population by 2045

Given that their results are often hard to measure until 10 or 20 years have gone by, evaluating population policies is often not appealing to policymakers as the risk is that premature evaluation do not show any tangible results, which would affect their own reputation and popularity (Thévenon, 2014). Furthermore, population policies evaluation is a rather a new area of work in some regions of the world. Countries in the Global North, for instance, started looking at population policies only in the late 1990s (e.g., Italy trying to grapple with its low birth rate and an increasingly aging population). On the contrary, countries in sub-Saharan Africa in the 1990s did not focus on the population growth as much as they could have, mostly due to the HIV/AIDS crisis and the highly "medicalized" and top-down response strategies put in place. That inevitably overshadowed the community-based prevention programs and discouraged all other past efforts aimed to spread the use of contraceptive methods in both rural and urban areas.

That said, one does not need to wait 20 years of implementation to observe the effect of a population policy. According to Mo and Légaré (2003), the effects of China's fertility policy have manifested themselves 15 years after the One-Child policy came into effect (the proportion of the old population increased by 39.5% and the dependency ratio between the population over 65 and the population between 15 and 64 years of age increased by 16.9 percent; see also Rosenzweig & Zhang, 2009). On the contrary, the Canadian population policy favoring the arrival of immigrants in large numbers produced its effects immediately (the proportion of the old population decreased by 9.9% and the dependency ratio decreased by 11.8 percent). In particular, while the pro-immigration population policy contributed to halting the decline of both the total population and the working-age population, its effects on the aging process were relatively limited.

<sup>10</sup> Interestingly, evidence show that anti-immigration policies are not as effective to stop the continued flux of foreigners into any country's territory as the measures adopted to contain the departure in their countries of origin.

### **Guiding Principle #10: A Population Policy Evaluation Framework Should Focus on the Measurement Not Only of the Effects but Also of the Nature and Quality of Their Planning Processes**

Any population policy evaluation should assess the degree of SMART-ness of the indicators included in the Policy's logical framework and should ascertain the validity and plausibility of the pathways and assumptions described in the corresponding theory of change.

### **Guiding Principle #11: A Population Policy Evaluation Framework Cannot Dismiss an In-depth Assessment of the Context/Environment Where the Policy Is Developed and Implemented**

Such exercise would particularly help identify the enabling conditions as well as the barriers and spill-over effects of other in-country programs influencing the same behaviors as those which the population policy is trying to alter. Population policies should not be evaluated in isolation of their context but rather seen in the context of strong linkages between population, health, and environment interventions. As a matter of fact, the same population policy and the same strategies could be implemented in ten different regions of a country and yield different results because of contextual variables as well as differences in the way the policy is implemented on the ground (to this end, process evaluation is a particularly recommended option besides impact evaluations or evaluations exclusively interested in measuring the intermediary or final effects of a given population policy).

Furthermore, some scholars have considered that modernization and development processes are two of the contextual factors that influence population policies as much as, if not even more than, family planning programs; (Robinson & Ross, 2007). In line with such realization, it is

not surprising then that the impact of family planning programs has also been accompanied by socioeconomic changes. In both Poland and East-Germany in the 1970s, the introduction of generous support packages to incentivize an increase in family size brought about a spike in the two countries' fertility rate. According to the theory of demographic transition, a sustainable decline in fertility is closely linked to socioeconomic development (Chesnais, 1992). Likewise, according to a study entitled "Investment and Profitability of family planning in China" conducted in 1999 by a panel of experts funded by the Chinese National Foundation in social sciences, 54% of the decline in fertility in China in 1971–1998 (the number of births decreased by 338 million nationwide) was due to the family planning and 46% was due to the socioeconomic development (Zha et al., 2000). Furthermore, according to the authors of the 2002 Annual Report of the United Nations Population Fund (UNFPA), "family planning programs are responsible for nearly one-third of the decline in fertility in the world level between 1972 and 1994" and "the effects of these programs on fertility were particularly significant in Asia, where they are responsible for more than two-thirds of the decline" (UNFPA, 2002).

The relevance of contextual variables hinders the external validity (that is, the generalizability) of the inferences about successes or failures of a population policy under evaluation. Otherwise said, the influence of the specific circumstances in which a population policy is implemented in a given country (often within a specific population group) is such that the conclusions about what works and what does not could not be automatically applied to the whole population as well as other countries' populations, settings, time, etc. In this vein, the accurate description of the population policy as well as of the way the evaluation sample was identified, are important "qualifiers" that will facilitate any possible transferability of inferences concerning effectiveness and impact of a population policy across measures, persons, settings, and times (Campbell & Stanley, 1966).

### **Guiding Principle #12: A Population Policy Evaluation Framework Needs to Assess the Validity of the Assumptions Underlying the Impact Estimations**

Estimated impacts of population policies (e.g., by the UN Population Division) are often flawed as they rest on national assumptions (e.g., fertility rate or use of contraceptives) which do not necessarily and equally apply to all country's regions (this is especially true for larger countries).

### **Guiding Principle # 13: A Population Policy Evaluation Framework Needs to Be Gender-Transformative**

In order to better understand fertility trends, it is important to measure changes not only in women's but also in men's attitudes and preferences. Mason and Taj (1987) highlighted four factors promoting gender differences in reproductive goals: (1) patriarchal societies; (2) pre-modern economic conditions; (3) a kinship system lineage-oriented; and (4) specific demographic conditions.

One could then conclude that male characteristics indeed matter when it comes to estimating the impact of a family planning program aimed to reduce fertility in a given country. Otherwise said, changes in women's attitudes could not bring about change unless accompanied by similar changes in attitudes towards marriage and reproduction issues amongst men. Overall, gender differences in reproductive goals, when diverging or converging, offer the key to interpret may the "why" and "how" of fertility transition at both the individual and the societal level.

According to Ambrosetti et al. (2019), gender relations have influenced attitudes towards ideal family size, especially in the Global South where male households often prefer larger families than women.<sup>11</sup> (Bankole & Singh, 1998; Snow et al.,

<sup>11</sup> As reported by Ambrosetti et al. (2019), a review of the 2015 Egypt Health Issues Survey (ICF International, 2015) attests that the ideal number of children in Egypt is higher for men than for women, i.e., 3.4 against 3.1.

2013). According to the same authors, the cultural desired balance in gender composition for children (Bongaarts, 2001) is also one of the most relevant determinants of the ideal number of children which, in turn, is closely correlated with fertility patterns.

### **How to Measure Changes as a Result of a Population Policy: The Importance of Using Valid Indicators and Credible Benchmarks**

An in-depth review of the specialized literature on population policies evaluation makes it possible to identify a vast array of indicators and corresponding benchmarks that could be used to track the performance of population policies over time. If an indicator helps to measure a change in state, knowledge or behaviors of individuals, organizations, and systems, a benchmark represents the standard/norm against which to judge the merit, worth, and significance of such change.<sup>12</sup> In the case of the contraceptive prevalence rate (CPR), for instance, the benchmark or standard reference point is generally comprised between 0.5 and 1.5 percentage points of increase<sup>13</sup> as this is the range of the CPR that is generally associated with positive outcomes according to the literature.<sup>14</sup> Depending on how close a CPR is to either the highest or lower value of the range, one could assess the population

<sup>12</sup> Benchmarks are "reference point(s) or standard (s) against which performance can be assessed" (OECD, 2002: 18).

<sup>13</sup> According to some estimates (Guengant, 2011), the increase in the prevalence of contraception by 1.5 percentage points per year would make it possible to reduce the need for contraception in 20 years. The current unmet need is of the order of 30% in Burkina Faso and Mali. In order to attain such target, it would be necessary to roll out – on a larger scale than ever before – awareness campaigns on the rights of women and children, women's reproductive rights, and their rights to make their own decisions on family planning (Guengant, 2011).

<sup>14</sup> Such benchmark is not associated with the implementation of coercive population control measured but rather with actions and strategies that respond to the unmet need for contraception in a given context.



policy that led it to it as either “very good” or “impactful”, “good”, and “sufficiently good”. On the contrary, any CPR lower than 0.5 percentage point increase would be the basis for determining that the corresponding evaluation policy is “not effective”.

### **Benchmarking: How to Do It?**

Comparing similar population policy interventions across different countries is also a way to benchmark one country’s experience and better appreciate its achievements and areas of improvements.

With respect to the fertility rate, one could compare the effective fertility rate with the “expected” fertility and the “potential” fertility. In order to measure this, several methods ought to be used:

- Fertility rate calculation: the proportion of women not using contraception who either want to cease further childbearing (unmet need for limiting) or who want to postpone the next birth at least two more years (unmet need for spacing); (Westoff, 2006: 1; World Bank, 2010). Fertility reduction could also be promoted among a certain population group (e.g., adolescents);
  - Estimation of births;
  - Effects of social factors and program components; and
  - Time elapsed between births.
- Here is the list of some of the indicators (including proxy indicators) that have proved the most helpful to evaluate the effectiveness and impact of interventions implemented within the scope of population policies:
- Distance to service providers (the community health worker’s fortnightly visit to each woman’s home in Matlab eliminated the opportunity cost of her time to travel to the clinic for supplies or advise);
  - Frequency of stock outages;
  - Quality of staff (and level of absenteeism);
  - Quality of health facility infrastructure (comfort, cleanliness);
  - Strength of leadership enabling the efficient introduction and execution of family planning programs managed by Ministries of Health and structured around ministerial activities, especially when built around pre-existing NGO activities;
  - Level of interlinkages of family planning services with women’s empowerment and education programs;
  - Infant mortality rate: deaths <1 year per 1000 live births;
  - Infant and child mortality rate: deaths <5 years per 1000 live births;
  - Women’s education level: a study conducted in Pakistan showed that changes in women’s education delayed the marriage (Sathar & Casterline, 1998: 773) and others studies attested that more educated women are more likely to be employed, to live in urban settings, and to marry later in life, and, therefore, less likely to enter into consanguineous unions. That ultimately leads to a decrease risk of pregnancy and therefore contributes to a lower TFR (Aziz, 1994: 730).
  - Degree of de-medicalization of family planning. In many sub-Saharan African countries, civil society organizations are not fully engaged yet as is the case instead in Latin America and the Caribbean (Guengant, 2011);
  - Program’s ability to compile data on and track performance;
  - Type of service provision point (health center vs. hospital and dispensaries; see Angeles et al., 2005);
  - Degree of modernization/innovation of contraceptive practices;
  - New attitudes towards reproduction and improvement of women’s status;
  - Women’s labor participation, income, and education level;
  - Urbanization rate (fertility tends to be higher in traditional and pre-transition societies with lower child-rearing costs);
  - Mass media penetration;

- Introduction of legal measures and institutional frameworks aimed to promote environmental security, increasing productivity in agriculture and rolling out off-farm non-agricultural activities, and widening access to population information, education, and communication;
- Number of old population (as attested by the China case, the drastic decrease in natality rate eventually translated into an increase in aging amongst the country's population (the percentage of the population over 60 years of age went from 6.8% in 1970 to 10.1% in 2000);
- Number of ideal, desired, intended, or expected births. Ambrosetti et al. (2019) clearly show how the personal preferences on and attitudes towards ideal family size in Egypt both amongst men and women, is closely correlated with actual patterns of fertility. Interestingly, the ideal family size shrank in the aftermath of the national family planning program (which was often referred to as *Inein Kifaya* (in English "Two is enough")).<sup>15</sup>
- Individuals' desires to have children. Population policies do not seem to affect individuals' desires to have children but rather to influence the operationalization of such a decision. The decision itself is the result of a personal and intimate journey between the two parents and is affected by the strength of their conjugal link or partnership as well as of their confidence in managing the consequences of such decisions (Ajzen et Klobas, 2013; Thévenon, 2014). In this vein, the households' confidence in the population policy is an important determinant of fertility and rests on three key parameters: the perceived legitimacy, sustainability, and perpetuity of the population policy;
- Type of policies enforced at the national level (natalist policies implemented in France, Scandinavia, and Poland vs. Italy/Germany). Overall, the French natalist policies, which feature incentives to have more children and lower fiscal pressure significantly for households with at least three children, boasts on average a greater family size and an earlier entry into parenthood than any many other European countries. It is worth to note that the repercussion of economic crises (including the pessimistic attitudes that characterize these particular conjuncture) on fertility and natality rate in France has been minimal;
- Number of incentives provided to households to have or not to have children. Several studies (e.g., Blanchet, 1987) confirm that incentives influence decision-makings but in a rather modest fashion.<sup>16</sup>
- Contribution of children to household income/cost of rearing children. This ratio tends to be low in modern societies and, therefore, is often identified as one of the factors leading to a decrease in fertility. To this end, they identify "innovation and adoption of new ideas and forms of behavior" as a more reliable explanation of the decrease in fertility in many countries and implicitly recognize that behavior change communication (BCC) is indeed

<sup>15</sup> As reported by Ambrosetti et al. (2019), the ideal family size in Egypt is smaller for never-married women and men (2.6 and 3.1, respectively) than for married women and men (3.2 and 3.7, respectively). This policy, which was accompanied by the Creation of the National Population Council and then of a Ministry of State for Population and Family Welfare, and consisted in the provision of income support (the program was known as *Takaful*, which mean "solidarity" in English) to vulnerable households living in rural area, aimed to reduce the fertility rate from 3.5 children per woman to 2.4 by 2030. Yet, despite the fact that the country's fertility rate has been halved over the past 40 years, the ideal family size started increasing again in 2015 if compared with 2008 (nearly three children per family) and so is the fertility rate. The focus of many population policies has been the spacing of births rather than the promotion of free choice in terms of family size (Guengant, 2011) and that eventually did not contribute to sufficiently large reductions in fertility rates.

<sup>16</sup> In studying the effects of economic support aimed to induce households to have more children in France, Ekert (1986) concluded that fertility increased by 0.2 child per woman. Similarly, a 25% reduction of child-rearing costs contributes barely to a 5% fertility increase (Laroque & Salanié, 2008). Yet, the introduction of a 1% reduction in fiscal pressure on households with three children has been associated with 0.05% increase in households with three children in France (Landais, 2003). That such policy worked was attested in the years following the introduction of subsidies aimed at families with two children (the increase in households with two children started increasing at a faster rate than amongst households with three children).

one of the most relevant strategies to induce a reduction in fertility, especially in countries where conversations on reproductive health behaviors and preferences are generally banned;

- Immigration policies and the type of shortage of unskilled/skilled workers that they may be responding to (Hailemariam, 2016: 11) *alternative employment opportunities and poverty reduction efforts should be improved by providing basic infrastructures in rural areas so as to reduce the mass youth migration to urban areas and also to harness the emerging demographic dividend. Finally, as population problems do not go away, but reappear in different forms, there is a need for continued research and policy response*<sup>17</sup>; and Development processes accompanying the formulation and implementation of the population policy. Ouédadrogo (2008) identified the process of the development of the population policy as a predictor of the related performance. Therefore, like in any other public policy evaluation, population policies should be assessed not only in terms of their effects but also in terms of processes (development and framing of key population issues, agenda setting, formal introduction, and implementation processes). The analysis then would need to focus on the strategy, the intervention, and yields.

### **Beyond the Boundaries of the Original Plans and Expected Objectives: How to Use Evaluation to Capture Unexpected and Unintended Effects, Positive and Negative, of Population Policies**

The implementation of population policies has often resulted in coercive actions (including forced sterilization) and has therefore dismissed the “no harm” principle that should underlie any

<sup>17</sup> In this vein, Canada is often mentioned in the literature for having pursued a pro-immigration population policy, thanks to which foreign born immigrants accounted for 19.8% of the country’s population already in 2000 (Mo & Légaré, 2003).

development interventions. In addition to the numerous articles on the violence associated with the roll-out of the One-Child policy in China, a growing body of literature and newspaper articles emphasize the negative and unexpected repercussion of India’s population policies on women (see Box 24.3). In her recent work, Wilson (2018) for instance, denounces the gender violence perpetrated by the state and transnational actors against poor Adivasi and Dalit women. According to the author, rather than responding to women’s needs and demands for access to safe contraception that they can control, the Indian state has imposed onto them coercive mass sterilizations and unsafe injectable contraceptives. More specifically, there are three factors that influence gender disparities during the roll-out of population policies: corporate dispossession and displacement, the intensification and extension of women’s labor for global capital, and the discourses and embodied practices of far-right Hindu supremacism. Furthermore, these shortcomings are not specific to India but are compounded by the global population control establishment, which is increasingly corporated, and from broader structures of racialized global capital accumulation.

Unfortunately, for a variety of reasons evaluations have often dismissed such unexpected or unwanted effects of population policies. One of such reasons is the excessive reliance on what the official documents often present as the population policy’s strategic – often ideal – objectives, which inevitably lead to lower scrutiny. In this respect, investigative journalism combined with an in-depth time series analysis have been able to make up for what evaluation have not been able to achieve.

#### **Box 24.3: How Journalism Helped Assess Population Policies’ Unexpected Results**

##### **The unexpected results of the One-Child policy in China**

A recent article of the *New York Times* (Myers et al., 2020) provides an accurate overview of how the One-Child policy,

(continued)

**Box 24.3** (continued)

which contributed to an overall decline in the China's population as of the early 1980s, has risked compromising the country's ability to meet its labor needs. Furthermore, the article describes the widespread preference for a son over a daughter in many families in countries around the world (not only India, Taiwan, Singapore and the Balkans but also in the U.-S. amongst Chinese- and Japanese-Americans) which has contributed to the "missing" girls phenomenon (100 m newborn infant girls have disappeared or have not been born; female fetuses may be aborted and baby girls killed or neglected). The article denounces that such practices are not only a gross violation of human rights, but that they also trigger gender-selection and many social and economic inequities. Interestingly, the Government of China, which had already allowed two children per family in January 2016, introduced a Three-Child Policy in May 2021.

**The unexpected outcomes of the India's population policy in India**

An article published in *The Guardian* (Virion Durandal, 2014) revealed that sterilization camps for women in India have been regarded as a cheaper option than contraceptives in remote villages, while incentives for surgery are condemned as coercion by legal experts.

Another reason for evaluation of population policies to fail detecting unexpected outcomes is tied to the specific evaluation design being used. That is the case of impact evaluations where RCT are being privileged. As stressed in the recent evaluation literature (Bamberger et al., 2016), RCTs do not lend themselves to identifying

serious but anticipatable unintended consequences of development programs, including population policies, mainly due to the linearity and narrow definitions of the hypotheses that they are expected to test. In order to address this issue, Box 24.4 presents a list of key questions that either during planning or in the course of an evaluation could help detect (and prevent as much as possible) unexpected/outcomes of population policies in the near future.

**Box 24.4: Key Questions to Ask to Account for Population Policies' Unexpected Outcomes**

1. To what extent were the unintended outcomes anticipated in the population policy design?
2. Did the population policy include ways to monitor or detect unintended outcomes since the onset?
3. How adequately were unintended outcomes diagnosed?
4. How much control do those managing the population policy have over the problems identified?
5. To what extent were unintended outcomes considered predominantly positive or negative or were the assessed differently by different stakeholders?
6. Did unintended outcomes occur at the same level of analysis (e.g. individual, household, community) as the population policy's intended outcomes?
7. Did unintended outcomes affect only some targeted population groups or the whole population?
8. How serious and frequent were the identified unintended outcomes?
9. At what stage of the population policy did the unintended outcomes mainly occur?

Source: Adapted from Bamberger et al. (2016)

## Conclusions

The chapter showed that, despite the increasingly pressing needs for better understanding the effects of population policies, rigorous process and impact evaluations are not always feasible or credible. First, there is a plurality of interactions between the results likely to be induced by a population policy with those produced by a vast array of interventions such as poverty alleviation, expansion of girls' access to education, etc. This makes it hard to isolate the "real" effect size or changes caused directly and exclusively by the policy. Second, the political, ideological, and religious rationale of certain population policies (e.g., the ban of incentives to abortion during a conservative government's term or the introduction of a pro-immigrant policy under a more progressive government) risks making evaluations redundant due to the priority assigned to meeting political constituencies' needs and interest rather than submit to evidence.

Despite the existing challenges, the chapter attempted to provide a way out of the current impasse and suggested a series of possible strategies to put in place in the near future. First of all, the adaptation of technical evaluation terminology to the population policy context and the subsequent promotion and dissemination of commonly accepted definitions of results and impact amongst policymakers. Second, the roll-out of capacity development programs aimed at making both population policy planners and M & E staff in line ministries familiar with the six internationally recognized evaluation criteria (relevance, effectiveness, efficiency, sustainability, impact and coherence). Third, the conduct of strategic conversations amongst in-country actors on what evaluation design is the most technically feasible and contextually relevant to use in order to measure the impact of a population policy. Fourth, the development and wide circulation of a new principled Population Policy Evaluation framework that could assess the processes and effects of a population policy in a holistic, -context-specific, equity-based, gender-transformative and technically sound fashion.

Fifth, the use of a rather exhaustive list of indicators that could be better taken into consideration not only for the sake of the evaluation but also of the planning and monitoring of a population policy. Sixth, a greater focus on the anticipation and real-time identification of population policies' unexpected (positive and negative) outcomes.

Overall, this chapter did not intend to provide a definitive answer on how to evaluate population policies but rather to revitalize the current discourse in this specific domain, which has been dormant for years, and provide policymakers and evaluation practitioners a greater set of tools and resources to select from in order to plan and conduct a population policy evaluation. In doing so, the chapter's goal was also to position evaluation as the entry point for more engaging and inclusive exchanges amongst evaluation professionals, demographers, public health experts, and a plethora of other relevant in-country actors/entities on a very salient topic. That is, how the rigorous generation of evaluative evidence could enable population policies to foster more socially, financially and environmentally sustainable development processes globally in the future.

## References

- Ahade, Y. (1994). Chapter 18: L'évaluation des programmes africains d'information, d'éducation et de communication en matière de planification familiale. In F. Gendreau, D. N. Kikhela, & F. Guérin (Eds.), *L'évaluation des politiques et programmes de population* (pp. 191–208). Paris, FR.
- Ajzen, I., & Klobas, J. (2013). Fertility intentions: An approach based on the theory of planned behavior. *Demographic Research*, 29, article 8, 203–232.
- Ambrosetti, E., Angeli, A., & Novelli, M. (2019). Ideal family size and fertility in Egypt: An overview of recent trends. *Statistica*, LXXIX(2), 223–244. <https://doi.org/10.6092/issn.1973-2201/8811>
- Angeles, G., Guilkey, D. K., & Mroz, T. A. (2005). The determinants of fertility in rural Peru: Program effects in the early years of the national planning program. *Journal of Population Economics*, 18, 367–389.
- Aziz, A. (1994). Proximate determinants of fertility in Pakistan. *The Pakistan Development Review*, 33, 727–742.

- Bado, A. R., Guengant, J. P., & Issaka Maga, H. (this volume). Chapter 8: Sub-Saharan Africa: Slow fertility transitions despite policy efforts. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Bamberger, M., Tarsilla, M., & Hesse-Biber, S. (2016). Why so many “rigorous” evaluations fail to identify unintended consequences of development programs: How mixed methods can contribute. *Evaluation and Program Planning*, 55, 155–162.
- Banerjee, A., & Duflo, E. (2011). *Poor economics: A radical rethinking of the way to fight global poverty*. Public Affairs.
- Bankole, A., & Singh, S. (1998). Couples’ fertility and contraceptive decision-making in developing countries: Hearing the man’s voice. *International Perspectives on Sexual and Reproductive Health*, 24, 15–24.
- Baus, D. (2017). *Overpopulation and the impact on the environment*. Dissertation. City University of New York, The Graduate Center. See [https://academicworks.cuny.edu/cgi/viewcontent.cgi?article=2929&context=gc\\_etds](https://academicworks.cuny.edu/cgi/viewcontent.cgi?article=2929&context=gc_etds). Accessed 10 Oct 2020.
- Behrman, J. R., & Knowles, J. C. (1998). Population and reproductive health: An economic framework for policy evaluation. *Population and Development Review*, 24(4), 697–737.
- Blanchet, D. (1987). Les effets démographiques de différentes mesures de politique familiale : un essai d’évaluation. *Population*, 42(1), 99–128.
- Bongaarts, J. (1978). A framework for analyzing the proximate determinants of fertility. *Population and Development Review*, 4(1), 105–132.
- Bongaarts, J. (2001). Household size and composition in the developing world in the 1990s. *Population Studies*, 55(3), 263–279.
- Campbell, D. T., & Stanley, J. C. (1966). *Experimental and quasi experimental designs*. Rand McNally.
- Center for Reproductive Rights. (2003). *Reproductive rights framework*. See [https://reproductiverights.org/wp-content/uploads/2020/12/pub\\_bp\\_rethinkingpop.pdf](https://reproductiverights.org/wp-content/uploads/2020/12/pub_bp_rethinkingpop.pdf). Accessed 4 Sept 2021.
- Chesnais, J. C. (1992). *The demographic transition: Stages, patterns, and economic implication*. Oxford University Press.
- Diop, I. L. (1994). Chapter 15: Les obstacles à la politique de population au Sénégal. In F. Gendreau, D. N. Kikhela, & F. Guérin (Eds.), *L’évaluation des politiques et programmes de population* (pp. 157–166). AUPELF-UREF-John Libbey Eurotext.
- Ekert, O. (1986). Effets et limites des aides financières aux familles: une expérience et un modèle. *Population*, 41(2), 327–348.
- Fauveau, V., Stewart, K., Khan, S. A., & Chakraborty, J. (1991). Effect on mortality of community based maternity care programs rural Bangladesh. *The Lancet*, 338(8776), 1183–1186. [https://doi.org/10.1016/0140-6736\(91\)92041-y](https://doi.org/10.1016/0140-6736(91)92041-y)
- Fournier, C. (1994). Chapter 5: La démographie au rendez-vous de l’évaluation des politiques et programmes de santé. In F. Gendreau, D. N. Kikhela, & F. Guérin (Eds.), *L’évaluation des politiques et programmes de population* (pp. 49–62). AUPELF-UREF-John Libbey Eurotext.
- Gérard, H. (1994). Chapter 2: Réflexions préliminaires sur le cadre général de l’évaluation. In F. Gendreau, D. N. Kikhela, & F. Guérin (Eds.), *L’évaluation des politiques et programmes de population* (pp. 15–23). AUPELF-UREF-John Libbey Eurotext.
- Gubhaju, B. (2009). Barriers to sustained use of contraception in Nepal: Quality of care, socioeconomic status, and method-related factors. *Biodemography and Social Biology*, 55(1), 52–70.
- Guengant, J. P. (2011). *Impact des politiques de population sur les politiques sectorielles et les évolutions démographiques au Burkina Faso, au Mali et au Niger*. Presentation delivered at the 5th Conference on Population, Reproductive Health and Economic Development Research, Marseille, France, January 19–21, 2011.
- Guzman, J. M. (this volume). Chapter 10: Population Policies in Latin America and the Caribbean: From Carmen Miró to the Montevideo Consensus. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Hailemariam, A. (2016). Implementation of the population policy of Ethiopia: Achievements and challenges. *Population Horizons*, 13, 1–14.
- ICDDR, B. (2006). Health and demographic surveillance system-Matlab. In *Registration of health and demographic events* (Vol. 35). ICDDR, B, Centre for Health and Population Research.
- ICF International. *Egypt Health Issues Survey*. (2015). Rockville: MD: ICF. See <https://dhsprogram.com/pubs/pdf/FR313/FR313.pdf>. Accessed 9 Oct 2021.
- Joshi, S., & Schulz, P. (2007). *Family planning as an investment in development: Evaluation of a program’s consequences in Matlab, Bangladesh* (Discussion Paper No. 951). Yale University, Economy Growth Center. See <http://www.econ.yale.edu/~pschultz/SchultzJoshiEGCWorkingPaper951.pdf>. Accessed 9 Oct 2021.
- Landais, C. (2003). Le quotient familial a-t-il stimulé la natalité française? *Économie publique*, 13, 3–31.
- Laroque, G., & Salanié, B. (2008). *Does fertility respond to financial incentives?* (Discussion Paper 3575). Institute for the Study of Labor; see <http://ftp.iza.org/dp3575.pdf>
- Mason, K. O., & Taj, A. M. (1987). Differences between women’s and men’s reproductive goals in developing countries. *Population and Development Review*, 13(4), 611–638.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- May, J. F. (2017). The politics of family planning policies and programs in sub-Saharan Africa. In J. B. Casterline & J. Bongaarts (Eds.), *Fertility Transition in*

- sub-Saharan Africa, Population and Development Review*, 43(Suppl.), 308–329.
- Mo, L., & Légaré, J. (2003). Les politiques de fécondité en Chine et d'immigration au Canada: étude comparée de leurs impacts sur le vieillissement. *Cahiers québécois de démographie*, 32(1), 7–41. <https://doi.org/10.7202/007410ar>
- Myers, S. L., Wu, J., & Fu, C. (2020, January 17). *China's looming crisis: A shrinking population*. See <https://www.nytimes.com/interactive/2019/01/17/world/asia/china-population-crisis.html?mtrref=undefined&assetType=PAYWALL&mtrref=www.nytimes.com&gwh=57338C66EE13CB69491E3D981E12B7EC&gwt=pay&assetType=PAYWALL>. Accessed 9 Oct 2021.
- OECD. (2002). Glossary of key terms in evaluation and results-based management. In *Evaluation and aid effectiveness* (Vol. 6). Organisation for Economic Co-operation and Development, Development Assistance Committee Working Party on Aid Evaluation.
- OECD. (2010). *Glossary of key terms in evaluation and results based management*. Organisation for Economic Co-operation and Development. See <https://www.oecd.org/development/evaluation/2754804.pdf>. Accessed 9 Nov 2020.
- Ouédraogo, D. (2008). Vers la refondation des politiques de population comme politiques publiques en Afrique subsaharienne? Une analyse exploratoire. *Cahiers québécois de démographie*, 37(2), 323–349.
- Paulet, C. (1994). Chapter 17: Politiques de population et donateur multilatéral: expériences et leçons du terrain. In F. Gendreau, D. N. Kikhela, & F. Guérin (Eds.), *L'évaluation des politiques et programmes de population* (pp. 179–189). AUPELF-UREF-John Libbey Eurotext.
- Robinson, W. C., & Ross, J. A. (2007). Family planning: The quiet revolution. In W. C. Robinson & J. A. Ross (Eds.), *The global family planning revolution: Three decades of population policies and programs* (pp. 421–449). World Bank Group.
- Rosenzweig, M., & Zhang, J. (2009). Do population control policies induce more capital human investment? Twins, birth weight and China's "One-Child" Policy. *The Review of Economic Studies*, 76(3), 1149–1174. See <https://academic.oup.com/restud/article-abstract/76/3/1149/1592252?redirectedFrom=fulltext>. Accessed 11 Oct 2020.
- Sathar, Z. A., & Casterline, J. B. (1998). *The onset of fertility transition in Pakistan*. The Population Council.
- Schultz, T. P. (2002). Fertility transition: Economic explanations. In N. J. Smelser & P. B. Baltes (Eds.), *International encyclopedia of the social and behavioral sciences* (pp. 5578–5584). Pergamon.
- Scriven, M. (1991). *Evaluation thesaurus* (4th ed.). Sage.
- Snow, R. C., Winter, R. A., & Harlow, S. D. (2013). Gender attitudes and fertility aspirations among young men in five high fertility East African countries. *Studies in Family Planning*, 44(1), 1–24.
- Stake, R. E. (2003). Responsive evaluation. In T. Kellaghan & D. L. Stufflebeam (Eds.), *International handbook of education evaluation* (pp. 63–68). Springer.
- Thévenon, O. (2014). Évaluer l'impact des politiques familiales sur la fécondité. *Informations sociales*, 3(18), 50–62. See <https://www.cairn.info/revue-informations-sociales-2014-3-page-50.htm>. Accessed 18 Oct 2020.
- Toto, J. P. (1994). Chapter 16: L'implication des structures nationales dans la mise en œuvre de la politique de population au Congo. In F. Gendreau, D. N. Kikhela, & F. Guérin (Eds.), *L'évaluation des politiques et programmes de population* (pp. 167–178). AUPELF-UREF-John Libbey Eurotext.
- UNFPA (2002). *UNFPA Annual report*. United Nations Population Fund. See <https://www.unfpa.org/publications/unfpa-annual-report-2002>. Accessed 9 Oct 2021.
- Virion Durandal, J. P. (2014, November 13). India's population policies, including female sterilisation, beset by problems. *The Guardian*. See <https://www.theguardian.com/world/2014/nov/13/india-population-growth-policy-problems-sterilisation-incentives-coercion>. Accessed 9 Oct 2021.
- Wang, F. (2010). *China's population destiny: The looming crisis*. The Brookings Institution. See <https://www.brookings.edu/articles/chinas-population-destiny-the-looming-crisis/>. Accessed 25 Aug 2021.
- Westoff, C. F. (2006). *New estimates of unmet need and the demand for family planning* (DHS comparative reports 14). Macro International Inc.
- Wilson, K. (2018). *For reproductive justice in an era of gates and Modi: The violence of India's population policies*. <https://doi.org/10.1057/s41305-018-0112-0>.
- World Bank. (2007). *Capturing the demographic bonus in Ethiopia: Gender, development, and demographic actions* (Vol. Report No. 36434-ET). World Bank Group.
- World Bank. (2010). *Unmet need for contraception at a glance*. World Bank Group.
- Zha, R. Z., et al. (2000). Prospects for China's population problems in the 21st century. *Population Research*, 24(1), 28–37. (In Chinese, with English summary).

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## Part IV

# New Policy Challenges





Stipica Mudrazija and Jacqueline L. Angel

## Introduction

Population aging has been the most significant demographic development in recent decades across the more developed countries and, more recently, across a growing number of less developed countries. Indeed, it is arguably going to be the dominant demographic trend globally during the twenty-first century. Globally today, there are over 700 million adults ages 65 and older, more than double their number in 1990 (United Nations, 2019a; World Bank, 2019). By mid-century, the number of older adults will more than double once more, reaching approximately 1.5 billion (United Nations, 2019a). Parallel with the fast growth of elderly population, global fertility rates are projected to continue declining from 2.5 children per woman of childbearing age today to 2.2 by mid-century, and below replacement rate by 2070 (Cilluffo & Ruiz, 2019). If this comes true, it will further accelerate the pace of population aging, with older adults accounting for 16% of the world

population in 2050, sharply rising from 9% today and only 6% in 1990 (United Nations, 2019a).

Although rapid aging in less developed countries will drive the continued acceleration in global aging, the more developed world has been experiencing population aging for much longer and has therefore been forced to start coping with the socioeconomic implications of this development much sooner than the less developed countries. Sweden, for example, was among the countries that first faced the prospect of population aging, as 8% of its population was aged 65 and older at the beginning of twentieth century (Uhlenberg, 2013). Over the recent decades, the main challenge facing these countries has been related to the fiscal strain due to growing costs of public pensions and healthcare as the growth in labor force has not kept pace with the growth in elderly population. Indeed, in Eastern and Southern Europe the absolute size of population ages 20–64, who represent the overwhelming majority of the labor force, has declined over the past decade (United Nations, 2019b), but that trend is going to impact an increasing number of countries in the years to come. The ratio of persons aged 20–64 to persons aged 65 and older in Europe and North America is currently about 3.3, a ratio that most less developed nations will not face until later in this century (United Nations, 2019a, b). Fig. 25.1 shows how old-age support ratio has more than halved across the more developed countries since mid-twentieth century, with less developed countries declining

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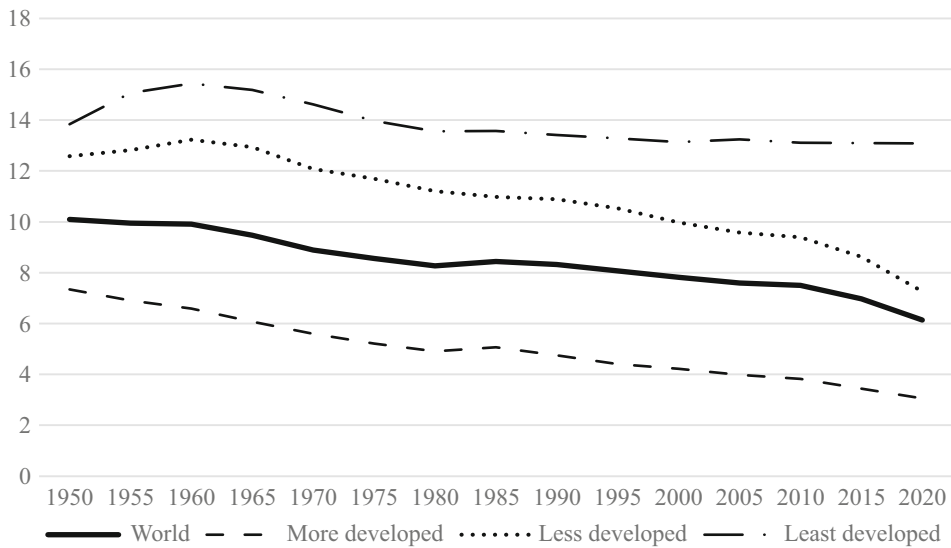
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**Fig. 25.1** Old-age support ratios, 1950–2020. (Source: United Nations, 2019b)

only now to the level recorded in the more developed countries seven decades ago, while the least developed countries have barely experienced any change since 1980s.<sup>1</sup>

These population trends and related fiscal challenges to the sustainability of the post-World War II social compact that was built in large part on the expanded role of the Welfare State have prompted more developed countries to seek solutions that could guarantee the long-term viability of the existing system. Broadly speaking, these policy solutions can be divided in two groups: (1) policies aimed at improving

fiscal sustainability of entitlement programs given the current demographic trends; and (2) policies aimed at changing the current demographic trends. The prime example of the former are policies aimed at incentivizing longer careers and postponed retirement. Focusing on trends in labor force participation and employment among older workers over the last couple of decades, it seems that more developed countries have mostly (although not uniformly) been successful in incentivizing longer work as a partial offset to deteriorating old-age support ratios and a way of shoring up the existing public retirement systems (He et al., 2016; National Institute on Aging, 2007). However, to the extent that this approach includes disincentives for retiring earlier than some fixed chronological age, it risks being unfair to many low-income workers and other vulnerable groups with shorter life expectancy and less opportunity and ability to work longer (Angel & Mudrazija, 2011). Another strategy has been to encourage workers to increase their individual retirement savings and asset accumulation more generally, thereby decreasing the pressure on public pension schemes as the dominant or even sole providers of retirement security. Results of this strategy have been mixed: while building assets, most commonly through home ownership,

<sup>1</sup> Per United Nations' explanation, the designation "more developed" and "less developed" regions are intended for statistical purposes and do not express a judgment about the stage reached by a particular country or area in the development process. More developed regions comprise Europe, Northern America, Australia/New Zealand, and Japan. Less developed regions comprise all regions of Africa, Asia (except Japan), Latin America and the Caribbean plus Melanesia, Micronesia, and Polynesia. The group of the least developed countries includes 47 countries: 32 in sub-Saharan Africa, two in Northern Africa and Western Asia, four in Central and Southern Asia, four in Eastern and South-Eastern Asia, one in Latin America and the Caribbean, and four in Oceania. Further information is available at <http://unohrlls.org/about-ldcs/>

has been met with some success, it has also proven limited inasmuch it can further exacerbate inequality with many lower income persons unable to build substantial assets and remaining largely dependent on limited public benefits in their old age (Mudrazija & Angel, 2014; Mudrazija & Butrica, 2017). Other options being explored and pursued include increasing payroll taxes and/or tax-funded subsidies, decreasing pension benefits, or a combination of both (He et al., 2016).

What is apparent, though, is that the policies aimed at mitigating the fiscal impact of population aging without addressing the underlying demographic trends cannot fully offset the present and future increase in the life cycle deficit of older adults, that is, the difference between their consumption and production, and the necessary size of inter-generational transfers to offset it (Lee & Mason, 2011). The total size of public benefits, including both pension and healthcare for older adults, is projected to reach 15–25% of gross domestic product across most more developed countries by 2040, increasing by about five to ten percentage points from their 2010 level (He et al., 2016). What policymakers are increasingly facing, then, is the choice between maintaining programs that have the central role in keeping older adults out of poverty and protecting their health and wellbeing, and keeping the public benefits affordable for the economy. To resolve this conundrum, many governments are increasingly focusing on policies aimed at directly impacting population structure – by increasing fertility, decreasing mortality (and morbidity), and changing immigration flows – rather than considering the current population structure as a given and focusing on its fiscal implications. These policies aim, directly or indirectly, to alter the demographic equation by increasing fertility, decreasing mortality and morbidity, and increasing immigration of working-age adults. They hold promise of providing a long-term sustainable solution to the aging-related policy challenges and are the focus of this chapter.

## How Did We Get Here? Demographic Transition and Population Composition

Before providing an overview of policies that may impact the demographic equation, it is important to remind ourselves how we got here as history can help us understand better and contextualize appropriately the extent to which various policies might be effective in altering future trends and whether and how their effectiveness may vary across (and even within) different societies.

Throughout much of its history, humankind experienced high birth and death rates keeping the population in a relative equilibrium (Kuate Defo, 2014). Over the past two centuries, however, the population underwent dramatic changes, first in more developed and, more recently, in less developed countries. The theory of demographic transition, as named by Notestein (1945), linked economic development, (public) health improvements, and evolving social norms with historically unprecedented change to population size and composition. Initially, improved economic opportunities and the implementation of basic public health measures such as widespread access to clean water and immunization lead to fast declining death rates while birth rates remain elevated, resulting in a fast population increase. This is followed by a decline in birth rates, often attributed to factors such as women's improved education and increased labor force participation, development of contraception, and changing social norms around the economic role of, and necessary investment in, children, among others factors.

An implicit assumption in the demographic transition theory was that following the transition a new equilibrium would be reached, with roughly a stationary and, on average, an older population (Lesthaeghe, 2014). However, this has not been the experience of many more developed countries; rather, they have been faced with persistently sub-replacement fertility rates, an increasingly old population and, in an increasing

number of countries, a declining population. Reflecting this reality, van de Kaa (1987) proposed a model of a second demographic transition that accounts more accurately for the implications of the recent shifts in societal trends, norms, and values. This model does not exclude the possibility of conditions arising that would favor replacement fertility level, but it does not recognize such outcome as inevitable, and it also suggests immigration may play a more important role than the original demographic transition theory allowed for. This particular aspect – immigration – and its impact on the age structure and labor markets of the highly developed countries has led some authors to talk about a third demographic transition (e.g., Coleman, 2006; López González & González-González, 2018), although this concept remains less universally recognized.

While primarily developed as explanations reflecting the experience of the more developed Western countries, the theories of demographic transition have been a useful framework for understanding the trends experienced by many less developed countries. However, the latter experienced the described transitions at an accelerated pace compared to Western societies and often with socioeconomic developments lagging behind the advancements in public health and medicine that are more easily transferable across societies, leading to population explosion at an unprecedented level. Because of this critical role of medical and healthcare advances as catalysts of population trends, it could be argued that the changes in mortality and fertility patterns in less developed countries might best be described in the context of the epidemiological transition, first formulated by Omran in 1971 (Kuate Defo, 2014; Omran, 1971). While inspired by the demographic transition theory (Kuate Defo, 2014), the epidemiological transition theory emphasizes the proximate causes of changes in mortality and fertility such as infectious diseases, chronic diseases, nutrition, medicine availability, and public health measures. Furthermore, Omran's versions of the model acknowledge the unique circumstances shaping the pace of change across different types of societies.

Regardless, however, of the theoretical lens that we apply to analyze societies at different

levels of development, it appears that they ultimately follow some variants of the transitional path initially charted by the more developed societies. Projections suggest that the number of countries experiencing a population decline and a total population loss is going to increase substantially in the coming decades, especially around the mid-century, and they will include an increasing number of both more and less developed countries. Using the United Nations' medium variant projection, 51 countries are expected to lose population between 2020 and 2040, and 84 countries will lose population between 2040 and 2060. This compares to 32 countries that were projected to lose population between 2000 and 2020. As Fig. 25.2 shows, the total loss of population recorded since the year 2000 in these countries (−17.7 million) is expected to almost triple between 2020 and 2040 (−48.8 million), and increase more than 11-fold between 2040 and 2060 (−203.1 million). Although more developed countries will continue to dominate the ranks of countries losing population over the next two decades, by mid-century this is going to change with less developed countries, and China in particular, having ever more prominent role.

With this context in mind, although the following overview of policies aimed at increasing fertility and decreasing mortality and morbidity, i.e., improving health outcomes, focuses on more developed, predominantly Western, societies, it has a value beyond their context. Indeed, the available evidence suggests that many less developed countries will face similar or greater challenges in decades to come and planning and taking action early may help them tackle successfully the population aging-related burden.

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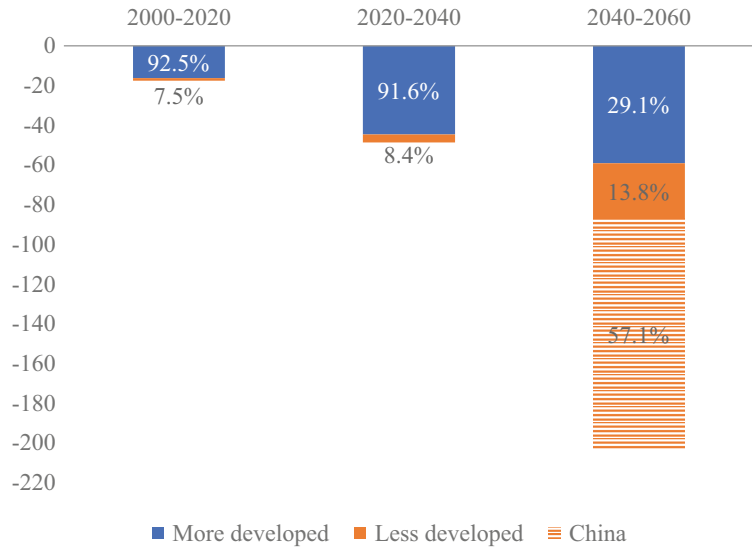
## Policies to Increase Fertility<sup>2</sup>

Following the post-World War II baby boom, total fertility rates declined across the more

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<sup>2</sup> See also section *Financing Pronatalist Policies* in Chap. 23: *Funding of Population Policies and Programs* of this *Handbook* (Dutta et al., this volume).

**Fig. 25.2** Population decline (%) in countries with negative population growth rates, 2000–2060. (Sources: United Nations, 2019b and authors’ calculations)



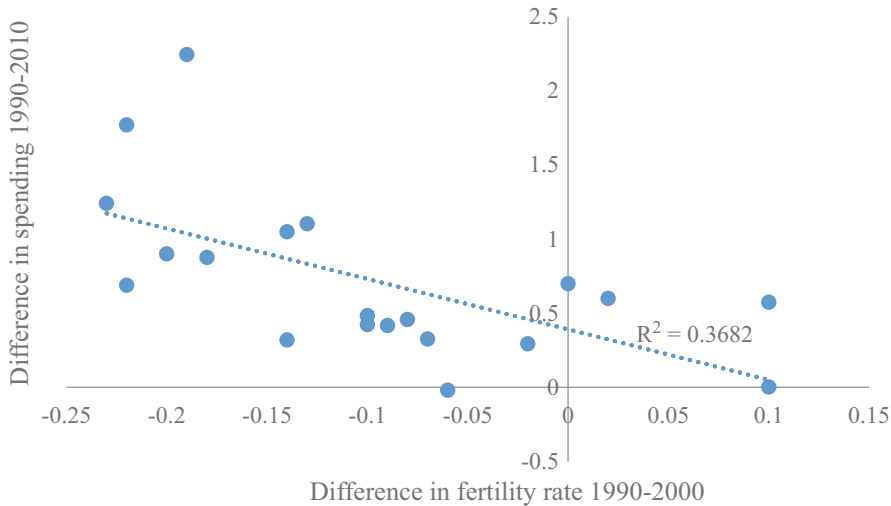
developed countries to sub-replacement level, but the extent of that decline varied substantially and, in recent years, some countries recorded modest recovery in their fertility rates. Policymakers and scholars are trying to understand whether and to what extent the divergence in outcomes across more developed countries is a function of policies that different societies have pursued, at least in part, to address the issue of low fertility. While as of now there is not a clear formula for the “correct” policy-mix leading to the desired level of fertility, it is instructive to compare fertility-related policies across countries with fertility rates at or near replacement level with those that have very low fertility rates.

Before focusing on individual policy-related indicators, we will examine the overall generosity of public policy spending on families across more developed countries and whether it might be related with fertility. For this purpose, we focus on total public spending on family benefits, which includes direct children-related transfers to families (e.g., child allowances, paid parental leave), services for families with children (e.g., childcare, early childhood education), and various tax benefits (exemptions, allowances, and credits) for families with children. Figure 25.3 links changes in spending on families between 1990 and 2010 with changes in fertility rates between

1990 and 2000 across a sample of more developed OECD countries. Although there is a substantial variation, we observe that countries with a decline in fertility rates during the 1990s have mostly had a larger increase in family-related spending by 2010. This suggests that the more developed countries do try, at least to some extent, to enact policies favorable to childbearing and childrearing in response to depressed trends in fertility.

However, it is fair to say that not all policies are created equal. While some more developed countries have partly turned the negative trends, others continue to experience negative outcomes despite sometimes substantial public investments into family supports. It is, therefore, imperative to examine more closely the approach of public policy to supporting childbearing and childrearing across different societies.

Table 25.1 summarizes key indicators related with policies that are often considered supportive of childbearing and childrearing. It shows that the overall spending on families and children as a share of GDP varies from just around 1% in Greece to as high as 3.7% in France. With the exception of the U.S., all other countries have national paid leave policies in place, with the total duration of available maternity, parental, and home care leave ranging from fourteen to



**Fig. 25.3** Changes in fertility rate (1990–2000) and public spending on families (1990–2010). (Sources: OECD social expenditure database, see <https://www.oecd.org/social/expenditure.htm>; OECD family database, see <https://www.oecd.org/els/family/database.htm>; and authors' calculations)

Note: Countries included in the sample are Australia,

Austria, Belgium, Canada, Denmark, Finland, Germany, Greece, Iceland, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Switzerland, the United Kingdom, and the U.S. France and Sweden are excluded as they have been actively pursuing policies to support children and families for a much longer period of time

161 weeks in Switzerland and Finland, respectively. However, the extent to which the available leave (if used in full) is paid also varies, from 25% in Finland to 100% in the Netherlands and Spain. Even in the U.S., there is a growing movement toward instituting national paid leave policy. Multiple states (e.g., California, Massachusetts, New Jersey, New York, Rhode Island, Washington) already instituted such policies, and in 2020 paid parental leave will become available to all federal government employees (U.S. Office of Personnel Management, 2019).

Comparing countries of Northern Europe and France that are often considered to have family policies most supportive of childbearing and childrearing with low-fertility European and non-European countries, it is evident that paid leave policies are not what distinguishes them as they do not offer longer leaves or higher payment rates relative to previous earnings. However, these countries come at the top in terms of spending on early childhood education and care, and have comparatively high enrollment rates of children ages 0–2 in early childhood education and

care at an affordable cost for families. Therefore, their family support policies extend beyond the birth event and related parental leave to include increasing availability and facilitating access to early childhood education and care. It appears that the comprehensiveness of available supports matters more than the generosity of any single policy, which corresponds well with the varied needs of (potential) parents.

A particularly instructive example in this regard may be Canada and its regional variation in fertility rates and policies. Québec, which had fertility rates lower than many other Canadian provinces in the 1980s, enacted a comprehensive set of family support policies at a substantially more generous level than in the rest of Canada, including paid parental leave, cash transfers, tax benefits, and subsidized childcare (United Nations, 2015b). Subsequently, Québec has turned its trend in fertility and is now on par with, or even better than, other Canadian provinces.

However, although direct spending on children and families is an important aspect of

**Table 25.1** Indicators of generosity of public policies aimed at supporting childbearing and childrearing, 2015 or latest available year

	Total spending on family support (% GDP)	Total paid leave (weeks)	Paid leave payment rate (% previous earnings)	Net equivalized household income, first month after the birth (% prior year's income)	Cash benefits at child's age 3 (% average full-time earnings) <sup>a</sup>	Public spending on early childhood education and care (% GDP)	Enrollment rate in early childhood education and care, children ages 0–2 (%)	Net cost, % of family net income <sup>b,c</sup>
France	3.7	42.0	42.9	77.3	4.0	1.3	56.3	9.8
United Kingdom	3.6	39.0	30.1	43.3	4.6	0.6	37.7	40.8
Sweden	3.5	55.7	62.1	73.6	6.0	1.6	46.6	3.9
Denmark	3.4	50.0	53.0	59.8	6.7	1.2	55.4	9.1
Iceland	3.4	26.0	68.2	65.5	3.9	1.8	59.7	4.5
Norway	3.4	91.0	47.3	85.9	3.9	1.3	56.3	5.3
New Zealand	3.3	18.0	46.8	66.6	0.0	0.9	50.1	29.1
Belgium	3.2	32.3	40.4	85.4	7.6	0.8	56.1	11.4
Finland	3.1	161.0	25.1	59.5	5.5	1.1	31.2	17.9
Germany	3.1	58.0	73.4	92.9	9.2	0.6	37.2	4.7
Austria	2.7	60.0	82.3	91.1	9.8	0.5	21.0	2.6
Australia	2.7	18.0	42.9	58.8	2.6	0.7	39.6	19.8
Italy	2.5	47.7	52.7	83.5	3.0	0.6	29.7	–
Ireland	2.3	26.0	26.7	68.7	7.1	0.3	32.1	26.1
Switzerland	2.2	14.0	58.4	78.9	5.5	–	38.0	26.3
Netherlands	2.0	16.0	100.0	87.5	3.4	0.6	59.3	21.3
Canada	1.7	51.0	52.1	74.5	12.5	–	–	21.0
Japan	1.6	58.0	61.6	89.8	4.6	0.4	29.6	15.2
Portugal	1.5	30.1	67.7	116.3	3.7	0.4	36.7	4.3
Spain	1.4	16.0	100.0	85.2	0.0	0.5	36.4	5.5
United States	1.1	0.0	NA	49.0	0.0	0.3	28.0	22.5
Greece	1.0	43.0	49.5	76.5	4.8	–	23.4	4.1

Sources: OECD Social Expenditure Database, see <https://www.oecd.org/social/expenditure.htm>; and OECD Family Database, see <https://www.oecd.org/els/family/database.htm>

Notes: <sup>a</sup>For two employed parents with two children, younger of whom is age three

<sup>b</sup>Net childcare costs for a two-earner two-child (ages two and three) couple family with full-time earnings at 100+67% of earnings, as a percentage of average earnings

<sup>c</sup>Selected regions or cities within some country: United Kingdom (England), Iceland (Reykjavik), Belgium (Wallonia), Finland (Helsinki), Germany (Hamburg), Austria (Vienna), Switzerland (Zurich), Canada (Ontario), Japan (Tokyo), and U.S. (Michigan)

supporting fertility rates, it does not tell the whole story of the link between public policies and fertility. Promotion of gender equality in the workplace and strengthening workplace flexibility is often considered integral to successful efforts to support fertility as it allows women to have families while pursuing their professional goals (OECD, 2011). Work-related barriers raise the prospect for women and families of their desired fertility not matching the ultimately

realized fertility. This is important because data suggest that desired fertility across more developed countries is broadly similar and that the observed gap to realized fertility owes much more to obstacles people face in having children they want than to any possible systemic difference in preferences for children (D'Addio & d'Ercole, 2005).

With this in mind, Table 25.2 presents comparative metrics of workplace flexibility for

**Table 25.2** Workplace flexibility for employed women, 2015

	Flexible work schedules (%) <sup>a</sup>	Working from home daily or several times a week (%)
Denmark	64.7	15.0
Sweden	63.3	12.2
Netherlands	62.7	12.2
Norway	59.0	10.0
Finland	50.0	13.0
Belgium	48.2	14.1
Austria	43.6	13.3
Germany	43.5	3.4
France	41.7	14.5
Switzerland	38.5	10.1
United Kingdom	38.1	11.9
Ireland	30.1	6.6
Italy	26.5	4.5
Spain	22.2	5.6
Greece	14.9	5.4
Portugal	12.0	8.3

Source: European Working Conditions Survey, 2015; see <https://www.eurofound.europa.eu/surveys/european-working-conditions-surveys/sixth-european-working-conditions-survey-2015>, accessed on February 17, 2022

Notes: <sup>a</sup>Includes employees who report that they can either ‘choose between several fixed working schedules’, ‘adapt working hours within certain limits’, or have the ability to ‘determine working hours entirely by themselves’

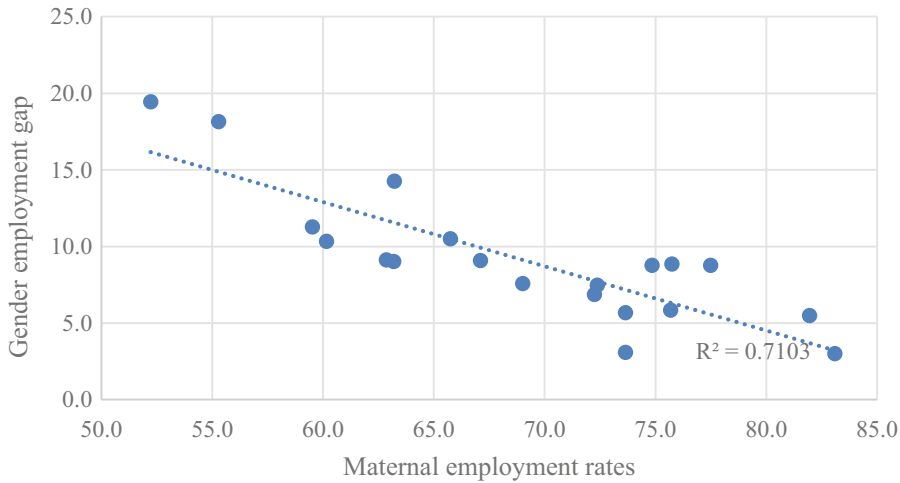
employed women. It shows that women in Northern Europe and the Netherlands enjoy the highest level of flexibility in choosing their work schedules and adjusting their work hours, as well as substantial flexibility in remote work. The case of the Netherlands is particularly interesting as its government has not enacted policies aimed specifically at increasing fertility. However, the Netherlands’ comprehensive and generous support for education and housing alongside flexible and female-friendly job market may create conditions supportive of childbearing (United Nations, 2015a).

What makes workplace flexibility policy particularly important is that it is not only an important tool in addressing low fertility rates, but arguably even more so one of the key measures for increasing female labor force participation and growing the economy as the population ages. Data unequivocally show that the lower the maternal employment rate (i.e., the rate of employment of mothers of children ages 0–14), the higher the gender employment gap (see Fig. 25.4). Some of the countries with the lowest maternal employment rates (e.g.,

Japan, Spain, Italy, Greece) also have very low fertility rates, whereas those with the highest maternal employment rates (e.g., Sweden, Denmark) also have more favorable trends in fertility.

However, this generalization does not apply equally to all societies, since there are countries such as the U.S., Canada, or Australia, where maternal employment rates are comparatively low (and direct spending on families is moderate at best), yet their fertility rates continue to be comparatively high among the more developed countries. These are the societies that have historically relied on continued stream of immigrants to provide them with the workforce they needed to support vibrant economies. And while economic considerations may be the primary driving force of migration flows, immigration does play a (limited) role in impacting fertility rates. First, although immigrants’ fertility rates tend to converge to the rates of the native-born population over time, they do marginally increase (by about 3–8%) the total fertility rate in their destination countries (OECD, 2011). Second, because they mostly migrate to the destination countries in





**Fig. 25.4** Maternal employment rates and gender employment gap. (Sources: OECD family database, see <https://www.oecd.org/els/family/database.htm> and authors’ calculations)  
 Note: Countries included in the sample are Australia,

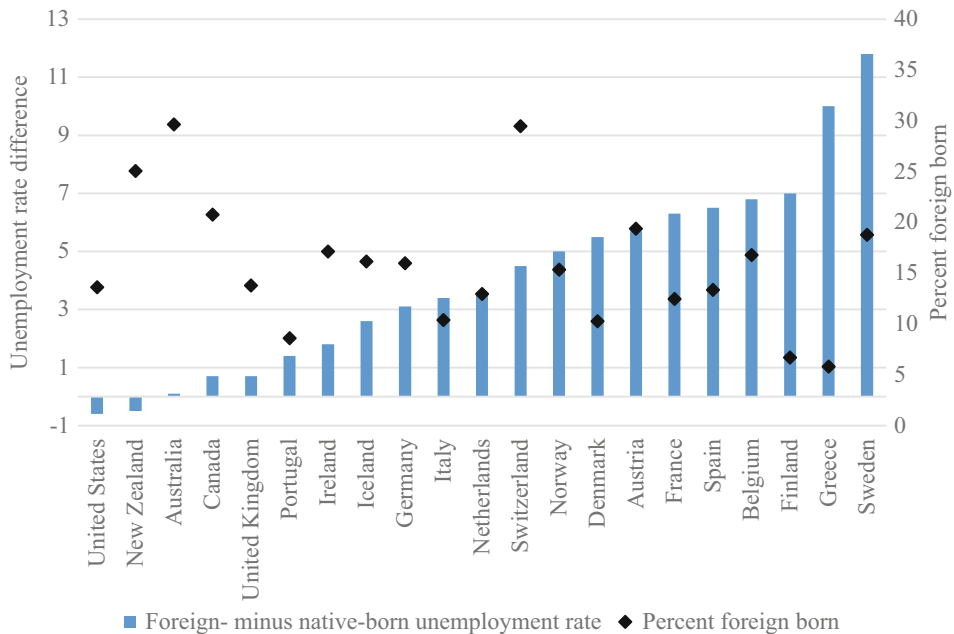
Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the U.S

their early or middle adulthood, immigrants increase the size of cohorts that are forming families and having children, while immediately altering the old-age support ratios. Therefore, while immigration by itself cannot address the problem of extremely low fertility rates, sustained flow of immigrants in some more developed countries appears to have had a moderate positive impact on their age structure.

Although historically limited to a handful of countries, immigration is now common across almost all more developed countries, including those (e.g., Italy, Ireland) that used to be known as sending countries rather than destinations of choice for immigrants. As Fig. 25.5 shows, most developed European countries now have roughly 10–20% of foreign-born population, with the share reaching almost 30% in Switzerland. Yet, the comparison of European countries with the English-speaking non-European countries reveals one key difference: in the latter group, foreign-born population appears to be much better integrated into the labor market. Immigrants’ unemployment rates are almost indistinguishable from (and in some cases even lower than) native-

born population, whereas across Europe there is a noticeably higher rate of unemployment for foreign-born than native-born population. At the extreme, the unemployment rate for foreign-born population in Sweden is almost twelve percentage points higher than for the native-born population. A recent survey on migration suggests that the opposition to immigration is generally somewhat higher across countries that we identified as those where immigrants are less well integrated into the labor market (Connor & Krogstad, 2018). This may suggest that countries such as Australia, New Zealand, Canada, and possibly even the U.S., may be well-positioned to continue to rely on immigrants to supplement their natural population growth for the foreseeable future if their policymakers choose to do so.

What this overview of policies to support fertility shows is that there is not a one-size-fits all approach, yet countries with fertility rates substantially below the replacement level appear to make only limited investments in family policies and have less generous welfare programs more generally, are not leading the way in integrating women in the labor market and providing women



**Fig. 25.5** Difference in foreign-born and native-born population unemployment rate and the share of population that is foreign born, 2018 or latest available year. (Sources:

OECD International Migration Statistics, see <https://stats.oecd.org/Index.aspx?DataSetCode=MIG>; and authors' calculations)

and parents the necessary workplace flexibility, and have not been successful in attracting and integrating immigrants on a sustained basis over a longer period of time. This combination of policy shortcomings appears to keep their fertility rates low and, if there is any silver lining, it is that the desired fertility across these countries continues to be similar to those across other more developed countries, suggesting that the appropriate policy action would likely improve their long-term demographic prospects.

## Population Aging and Health Policies

Global aging, the twin trends of declining fertility (birth rates below population replacement levels), and declining death rates that characterize the fourth stage of the demographic transition, has given rise to a rapid growth in the percentage of older people in a society (Ogura & Jakovljevic, 2018). In the next decade, every country in the world is expected to experience a substantial

increase in the older population (United Nations, 2017b). In certain more developed countries like Germany, Italy, and Japan, Western Europe's birth rate is already below replacement levels as discussed earlier. As the number of older persons continues to grow, the implications are likely to be profound.

Diseases of aging and increases in protracted periods of disability and dependency preceding death are the inevitable consequence of aging populations, that affect those older adults over 80 and, particularly women who live longer than men and who have the highest care needs (He et al., 2016). The U.S. Census Bureau projects that there will be more older people at extreme age than children in the U.S. by 2035 (U.S. Census Bureau, 2018). The U.S. is not alone. The old-age support ratio, defined by the ratio of potential workers to retirees, will plummet in 2030, cut in half in only two decades (United Nations, 2017b).

Such unprecedented population aging trends are becoming a priority issue for policymakers,

and raise important questions for how nations will respond to the increasing demand on the healthcare system. Nations differ radically in the way they organize and finance healthcare. This holds true even among nations at the same level of economic development. A healthcare system consists of: personnel who must be recruited and trained, technologies that must be developed and paid for, and services that must be organized and delivered in order to address problems of morbidity and mortality through prevention, diagnosis, treatment, rehabilitation, etc. (Litman & Robins, 1971; United Nations, 2017a). This “system” constitutes the “Gross Medical Product” or outputs of the system (Centers for Medicare and Medicaid Services, 2020b).

During the twentieth century the modern welfare state became synonymous with the assurance of the full range of social rights, the most basic of which are retirement security and access to preventive and curative healthcare (Esping-Andersen, 2015). The U.S. is often characterized as a welfare state outlier given the lack of universal healthcare coverage (UHC). In addition to the private employment-based health insurance system characteristic of the U.S., historically institutionalized gender roles have created a system that places women at a disadvantage relative to men in terms of their own access to employment benefits and that increases their dependence on a male breadwinner. Compared to other more developed nations, the U.S. is an outlier in another respect, spending more on healthcare than any other country (Anderson et al., 2003). In the U.S., the price of medical care for prescription drugs, physicians, hospitals, nursing, and medical equipment is truly exceptional. And yet countries such as France, Germany, and Italy have better health outcomes.

Americans do not favor big government in their lives; universal healthcare has always been likened to socialized medicine (Manchikanti et al., 2017). The federated governance system places great barriers in the path of would be reformers (Starr, 1982). The American Medical Association (AMA), employers, and even unions have been opposed and the rapid spread of commercial coverage beginning in the 1930s fueled

by tax incentives for employers and employees provided a strong impulse for an employer-based system (Jacobs & Skocpol, 2016). There are many interested players with veto power, and plain old institutional inertia creates major problems. A more equitable distribution of healthcare faces all of the problems of redistribution policies generally. Those who benefit from the present system stand to lose benefits and face higher charges for less coverage. As we discuss next, the passage of Medicare and Medicaid in 1965 established an important role of government to create programs that would protect and improve the healthcare of the most vulnerable groups, the very poor, the old, and the disabled.

### **The American Welfare State: Medicare and Medicaid**

In the U.S., two federal entitlement programs guarantee healthcare for older adults and people with disabilities. Medicare, which provides hospital coverage and a provision to cover physician services for the elderly, was the cornerstone on which to build an “inclusive universal program” of healthcare (Piatak, 2015). Medicaid is a healthcare safety net that includes benefits for acute and long-term care to many of the nation’s poor (Institute of Medicine, 2001). The overall goals of the programs were designed to protect the elderly and disabled from falling into poverty, through work-based payroll contributions (Medicare), and to provide tax-funded health insurance for less fortunate people who lack access to affordable care (Medicaid). Both policies help over 137 million people live longer and healthier lives (Centers for Medicare and Medicaid Services, 2020a). In the absence of the Great Society programs, the health of an entire nation could have been put at risk. As Wilbur Cohen, the Secretary of Health, Education and Welfare mentioned on January 13, 1969, in just five brief years U.S. President Johnson had more legislative achievements that so profoundly affected people’s health and their access to healthcare and other social services than any other U.S. President (Centers for Medicare and Medicaid

Services, 2020d). Never before in U.S. history did a U.S. President act on behalf of older Americans with programs to enrich their lives—Medicare, the Social Security Act of 1965, 1966, and 1967, the Older Americans Act, and community service projects. The Medicare program gave elderly citizens the dignity and respect they deserved, and also the health security for generations to come (Centers for Medicare and Medicaid Services, 2020c).

But as the population ages and the number of individuals with disabilities increase, Medicare confronts pressing financial and ethical issues on the consequences of extended life and low compression of morbidity, the number of unhealthy years an individual spends prior to one's death. Due to aging, longer lives, and disabilities, retirees may not have sufficient savings to pay for long-term care (Carr, 2019). About 50% of the 77 million baby boomers do not have adequate retirement income (Congressional Budget Office, 2017). Low-income older enrollees are particularly vulnerable and participate in both Medicare and Medicaid programs (known as "Duals"). Compared to the non-Dual Medicare beneficiaries, this subgroup of the Medicaid population has a high prevalence of chronic conditions, disabilities, and substantial care needs (Angel et al., 2019). As a group, dual eligibles are costly—with per capita Medicare and Medicaid spending over four times Medicare spending for other beneficiaries (Figueroa et al., 2018). The cost of living longer will inevitably rise given that Medicaid is the largest single source of financing for long-term services and supports (LTSS).

Medicare has recently begun paying physicians to counsel terminally ill patients on their treatment options in order to determine their wishes and create a plan of action to follow when the end is near (Kaiser Family Foundation, 2016). Many physicians did so without charging before this change in policy, but the recognition that such counseling is needed motivated the formalization of the reimbursement policy. Without such a conversation and the documents that emerge from it, doctors and family members must make decisions concerning the prolongation or termination of

treatment for a non-communicative dying family member without knowing his or her wishes. The 2019 novel corona virus pandemic (COVID-19) has underscored the need for advanced care planning (Span, 2020).

In sum, while both the Medicare and Medicaid have achieved success over the past 50 years, the new reality of the U.S. population getting older faster, living longer, and becoming more diverse and needier will inevitably present financial challenges for Medicare, Medicaid, and a host of state and local programs. Although Medicare, Medicaid, and the new State Children's Health Insurance Program (SCHIP) guarantee healthcare coverage for the elderly and poor children, serious gaps in the healthcare safety nets remain.

## ACA 10-Years Post Enactment

In 2010, under U.S. President Obama, the U.S. Congress passed *The Patient Protection [and] Affordable Care Act (ACA)*, one of the largest bills in U.S. healthcare history to address disparities in health coverage and access to essential services. Health insurance is critical to making healthcare affordable to Americans and the ACA expanded coverage to 32 million Americans who were uninsured. The U.S. Congress crafted the law that provides a clear standard and the foundation for the health of all Americans. To help individuals who could not get coverage through the workplace find a suitable policy, the Federal government set up a national Healthcare Exchange. The Federal government established tax credits to help qualified low-income individuals and families pay a reduced monthly premium. The exchange provides a range of health policies and premiums to choose from, and the 2015 *King v. Burwell* favorable decision helped to stabilize this benefit (U.S. Supreme Court, 2014).

The primary purpose of the ACA was to set a minimum standard for policies sold in the private insurance markets (National Association of Insurance Commissioners & The Center for Insurance Policy and Research, 2013). To accommodate the free market structure of the U.S. economy, the

ACA standards only apply to policies sold through the exchanges or purchased by employers. Individuals are still free to purchase insurance plans outside of the exchanges, but by applying standards, health insurance consumers have a new strategy for comparing policies. Almost 160 million Americans obtain their health insurance through private plans purchased through the workplace or as individuals (Collins et al., 2019). Before the enactment of the ACA, there were no principles defining the benefits, presentation of the plan, or profits associated with health insurance products. With the ACA, policies purchased in the exchange must adhere to the standards.

Health insurance policy is inextricably tied to gender and race throughout the adult life course. While life cycle events experienced by women create unique healthcare service needs, it was common business practice to ignore these needs prior to the ACA. These events include pregnancy, exiting the workforce to provide care for children and older relatives, and widowhood causing loss of spousal insurance. As we discuss next, the ACA addresses many barriers facing women across all age groups by removing the gender rating, providing free preventive services, and requiring maternity coverage on all health insurance plans.

### **Gender and Traditional Barriers to Health Coverage**

Prior to enactment of the ACA in 2010, there were many impediments for women who wanted to obtain quality healthcare insurance. General policy barriers existed for anyone who suffers from or survived a serious illness, which were classified as “pre-existing conditions”, allowing insurers to deny coverage or charge extremely high premiums (Kaiser Family Foundation, 2020). Because women are more likely than men to survive serious illness, they experienced higher rates of denied coverage (National Women’s Law Center, 2013). Private markets could refuse to sell a policy to someone with a history of an illness like breast cancer. If those women were able to buy policy, there was no

limit to the amount of monthly premiums that could be charged. In essence, these common practices led to a growing population of persons with chronic conditions who were unable to purchase health insurance and unable to obtain healthcare. The ACA outlawed the practice of outright refusal and removed the pre-existing conditions barrier by limiting premium prices on policies sold through the state or national exchanges (Grogan, 2017). Reproductive-age women faced significantly more hurdles than men in gaining less-than-adequate healthcare coverage. The “gender rating” allowed insurers to charge more for policies in order to cover certain procedures, such as maternity coverage and certain preventive services. If these services were excluded from the policy, the policy premium would be lowered, but it created a coverage gap for reproductive-age women.

Another impediment that prevented women from gaining coverage stems from the well-documented barriers women face in the employment market. Employer-based coverage is the dominant source of health insurance for all U.S. adults (Jacobs & Skocpol, 2016). Prior to ACA, workers in low wage and low skilled occupations were less likely to have employer-sponsored plans, or if they did have coverage, the plans offered fewer benefits (Miles, 2012). Women, especially immigrants or those in a minority group, face serious disadvantages in the labor market (Angel et al., 2009; Bird & Rieker, 1999). While ACA did not address the employment barriers, it does require employers with 50 or more workers to provide coverage and sets standards for those benefits or the employers risk paying a penalty (Miles, 2012).

Apart from employment, other gender-based roles are interfering with women’s ability to maintain good health and coverage. Many social and demographic changes have greatly altered marriage and family patterns in recent years, including higher rates of marital disruption and out-of-wedlock childbearing. Older women who outlive their traditional “breadwinner” husbands become vulnerable to a loss of insurance coverage or a loss of full benefits in old age (Angel et al., 2011). Even with insurance coverage, many

widows on fixed income cannot afford the out-of-pocket costs associated with obtaining healthcare and tend to forego seeking care.

Thus, while the ACA has reduced healthcare disparities, and brought the U.S. closer to universal healthcare, affordable coverage remains elusive. This policy is only a partial solution to guaranteeing health insurance (Manchikanti et al., 2017).

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### **Population Aging and Policy Challenges in Less Developed Countries**

Finally, we provide a brief overview of population trends and related policy challenges in the less developed countries. While aging is a universal phenomenon, as shown in the earlier sections of this chapter, the focus of this overview is primarily on East Asia, and primarily China as the country that will contribute most to the global growth of older population in the coming decades, and Latin America where almost all countries are aging and many of the largest ones, such as Brazil, are aging rapidly. Two features make aging in less developed countries particularly challenging relative to more developed countries: much faster pace of aging and their lower level of economic development and the related limited ability to fund social expenditures, including those for older adults and families (United Nations, 2019a).

While it took over one century for the share of adults aged 65 and older to double in France and over six decades in the U.S., it is going to take only about two decades in Brazil and just marginally longer in China, with the trends in most other less developed countries following similar pattern (National Institute on Aging, 2011). This translates into population pyramids of many less developed countries following the same path of inversion that was until recently almost exclusively characteristic of more developed countries. The economic development across less developed countries, on the other hand, has been more uneven, leading some authors to observe that they are likely to get old before getting rich

(Garcia & Wong, 2018; Gutiérrez-Robledo, 2002; National Research Council, 2010). For example, Japan, which has the oldest population in the world, reached the level of 7% of total population being ages 65 and older with the gross domestic product (GDP) per capita of about USD 18,000, while China passed the same mark with its GDP per capita at only USD 1700 (Garcia & Wong, 2018). Therefore, although lower- and middle-income developed countries as a group have enjoyed substantially higher rates of economic growth than their more developed peers in 1990s and 2000s, but markedly less so following the Great Recession (Derviş, 2018), very few of these countries exhibit persistent levels of high economic growth necessary to achieve convergence with more developed countries. Indeed, most appear to fall to what is commonly referred to low- and middle-income traps (Arias & Wen, 2015). Actually, much of the observed convergence can be attributed to China, which has continuously for the past three decades recorded GDP growth well in excess of 6% annually and in many of those years approached or surpassed the 10% mark, and much less so India. Meanwhile, Latin American countries, for example, have largely been unable to close the gap with the most developed countries (Arias & Wen, 2015). In this context, then, policy challenges of aging are likely to be much more pronounced across less developed than more developed countries as their need to provide support to older adults has grown rapidly while their ability to do so remains limited. As of now, much of the policy focus of these countries has been on introducing or expanding public pensions as well as providing adequate healthcare, including long-term services and supports, and much less so, if at all, on supporting childbearing and childrearing.

China deserves particular attention, because it is the country that has undergone arguably the most impressive economic transformation in recent history and the country with the largest population in the world. Helped by the enactment of the so-called One-Child policy in the late 1970s, China was successful in curbing relatively rapidly the growth of its population, yet partly as

a by-product of this effort (alongside economic development and related increase in life expectancy), its population is now aging swiftly. Therefore, its policymakers are coping with an enormous task of providing support for China's swelling ranks of older adults. Starting in 2013, China started relaxing its long-standing One-Child policy, abandoning it completely by 2015 (Glinskaya & Feng, 2018; United Nations, 2015c). However, as of now there is little sign of a rebound in fertility that has been at a sub-replacement level continuously since 1992 (World Bank, 2020). It appears that without accompanying policies that support working-age adults to balance work and family, such as providing affordable childcare, this reversal of the administrative limit on the number of children may have little impact on fertility rates (United Nations, 2015c). However, it seems that the first priority of policymakers in China has been to expand social support for the elderly, especially as it relates to public pensions and long-term services and supports. The Chinese government has been reforming its public pension system since the early 2000s in an effort to expand access to individuals in rural areas and those working in informal sectors of the economy (Polivka & Luo, 2013). Although the benefits provided by the government are still very modest, these efforts suggest a commitment to providing universal or near-universal public pension coverage in China. In a society where the traditional expectation has been for children to provide caregiving to ailing older parents, the expansion of long-term services and supports options in recent years has been rather remarkable, providing very broad-based coverage (Polivka & Luo, 2013). In just five years, from 2009 to 2014, the total number of beds in elderly care facilities doubled, allowing China to have as many beds per 1000 older adults as much more developed countries such as the United Kingdom or France (Wang, 2018). However, this rapid expansion has even outpaced demand leading to potential oversupply of beds, at least as of now (Wang, 2018).

Similar to China, other emerging economies in Asia are faced with the challenge of caring for growing elderly population. However, their

ability to expand social supports for older adults remains even more limited than is the case in China and they are still far from providing universal healthcare and especially pension coverage. For example, Vietnam's public health insurance plan covered only about 70% of the population as of 2015 despite the stated universal coverage goal, and more than 80% of older adults lack pension coverage, primarily due to the fact that an overwhelming majority of workers is employed in the informal economy and does not contribute to any formal pension schemes (Garcia & Wong, 2018). A particular health challenge facing China and other emerging economies across Asia is the fast growth of non-communicable chronic diseases such as cardiovascular diseases, diabetes, or hypertension and increase in physical and cognitive impairments (Garcia & Wong, 2018). For all these reasons, family and adult children in particular remain the key providers of support for older adults.

While the pace of aging varies substantially across Latin America, fertility rates are at or below replacement level in most major countries in the region (Jackson et al., 2009) and the period of decline in total dependency ratio (i.e., ratio of people younger than 15 and 65 and older to people ages 15–64) has either ended or will soon end across all but a handful of countries in the region such as Paraguay, Bolivia, Guatemala, and Honduras (Figliuoli et al., 2018). Although Latin American countries are mostly ahead of less developed Asian countries with respect to their GDP per capita, their economic growth has generally lagged behind their Asian peers and, as a result, they are also mostly getting old before becoming rich. Even countries that appear quite youthful today such as Mexico will age rapidly in the coming decades, with a median age increasing from around 28 years today to about 42 by mid-century (Angel et al., 2017).

Compared to most Asian countries, Latin American countries have embarked sooner on the path of reform and expansion of public supports for older adults. Following Chile's reform of the pension system from unfunded (pay-as-you-go) defined benefit system to fully

funded defined contribution system, many other countries in the region implemented some version of it. As a result, the pension system landscape across Latin America is very diverse, ranging from more traditional defined benefit systems (e.g., Argentina and Brazil) to fully funded systems (e.g., Chile and Mexico) or some combination of the two (e.g., Colombia and Peru). Despite the progress, the high degree of informality in the economy, with about half of all workers in the region working under informal conditions, represents a major obstacle to any effort to provide adequate retirement incomes to growing elderly population (Figliuoli et al., 2018). Whereas non-contributory pensions partially alleviate this coverage issue, they generally provide very modest benefits (Figliuoli et al., 2018). Healthcare coverage varies across countries from high or (near) universal in countries such as Chile, Uruguay, Colombia, and Argentina to very limited in countries such as Paraguay, Guatemala, Honduras, and El Salvador (Figliuoli et al., 2018). Life expectancy across Latin America is comparable with more developed countries, and non-communicable diseases are the leading cause of death (Cotlear, 2010). In Mexico, for example, ten million adults suffer from diabetes and about 70,000 die of it each year, a condition primarily attributable to the fact that seven out of ten persons in Mexico are considered overweight and almost one third obese (FAO, 2013). This and other risk factors and chronic conditions are particularly challenging not only because of the associated high risk of disability and related financial burdens of providing long-term services and supports for frail older adults, but also because of the increased susceptibility to infectious diseases as it has been on full display with the COVID-19 pandemic (Chow et al., 2020).

While this overview shows a substantial, albeit uneven progress in providing social supports to older adults across the less developed countries of Asia and Latin America, some of the policies that we focused on in this chapter and that are more directly linked with increasing fertility such as family policies and policies aimed at facilitating labor force participation for women with children have not received much attention in these

countries. Historically, these countries have fought with high fertility and (fears of) overpopulation which led to campaigns to limit family size and, in the case of China, even an explicit limit on childbearing. While this mindset may be changing, as exemplified by the gradual abandonment of the One-Child policy in China (United Nations, 2015c), the pace of change lags behind the new demographic reality. And at the time when all countries are focused on increasing labor force participation, the fact that Latin America has lower ratio of female to male participation and shorter careers for women not only compared to more developed countries, but also to less developed countries in East Asia and Central, Eastern, and Southeastern Europe (Figliuoli et al., 2018), is attributable to career-disruptive impact of childbearing and childrearing in societies without policies supportive of mothers in the workplace. These policies, then, remain an area where less developed countries need to do much more to support their prospects of continued growth and development as they aim to close the economic gap with the more developed countries. This is certainly not to say that there is no room for further improvement of policies to support older adults. Indeed, as the social and demographic transformation of less developed countries continues, additional rebalancing of support responsibilities from families to the society will be warranted. Across a growing number of Latin American countries, for example, living alone is becoming either the most common or the second most common living arrangement among adults ages 80 and older (Aranco et al., 2018). Because of the increased vulnerability of this population to adverse economic and health outcomes, they require additional policy support relative to their peers who can rely on family (Mudrazija et al., 2020).

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## Conclusion

In this chapter, we attempted to provide an overview of some of the main policies impacting fertility as well as mortality and morbidity across the more developed countries, highlighting the



most instructive examples – both positive and negative – that can offer lessons for the future, especially as less developed countries contemplate their policy response to the impending challenge of population aging. Our overview of policies to support fertility showcases the variety of policy responses to a historically unprecedented challenge since prolonged periods of sub-replacement and, in some cases extremely low, fertility rates is a contemporary phenomenon. We find that policies do matter, yet there is not one measure that can on its own “solve” the very low fertility regime. Because of several factors: i.e., reasons accounting for the discrepancy between the desired number of children (which is close to or above replacement level across most more developed countries) and the actual number of children vary; difficulties in transition to adulthood (e.g., expensive housing, limited job opportunities); direct costs of child-bearing and childrearing; and obstacles for women to reconcile work and motherhood, the solutions need to be equally comprehensive. With respect to policies focused on mortality and morbidity, we decided to highlight the U.S. because of its unique healthcare system that is continuously evolving and struggling, with more or less success, to cope with an aging population and the potential dependency burden it represents. This example can be particularly instructive for many less developed countries that do not have comprehensive publicly-funded healthcare systems akin to those across most more developed countries, and can learn from the ongoing efforts to increase quality, availability, and affordability of healthcare in the context of swiftly-aging populations (Ogura & Jakovljevic, 2018).

We emphasize the importance of contextualizing the way in which aging populations and social institutions shape policy formation. Health, social, and economic policies for older persons vary substantially among industrialized nations. The U.S. is unique compared to other industrialized nations. Although it does not offer universal healthcare, the U.S. has a generous old-age welfare state encompassing large public programs for the older population that provide benefits for health insurance, long-term care,

retirement income, and other social needs. Assessing the impact of population aging on healthcare policy will inevitably require a more sophisticated understanding of political, social, and economic factors as well as the physical environment to reduce inequities between and among population age groups across the life course.

Of course, our overview of aging-related public policies is far from exhaustive. Our analysis is not meant to provide a nuanced deep dive into any single policy, but rather to highlight the rich universe of policies pursued by different countries in their effort to deal with this important and complex demographic challenge. Even so, population-related policy challenges continue to evolve, and while the larger issue of aging will not change in the foreseeable future, unforeseen developments threaten to further undermine our efforts to address it. Climate change raises the prospect of increasing occurrence of natural disasters such as extreme weather events, health-related threats related to, for example, increase in respiratory diseases and food-related threats, all of which can be particularly challenging for older adults. The opioid epidemic and the epidemic of gun violence, especially in the U.S., now feature prominently among the leading causes of death. Most recently, the COVID-19 pandemic uncovered vulnerabilities of healthcare systems across more developed countries, especially as it relates to nursing homes and other institutional long-term care facilities. All of these challenges will require adequate policy response in the years to come.

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## References

- Anderson, G. F., Reinhardt, U. E., Hussey, P. S., & Petrosyan, V. (2003). It's the prices, stupid: Why the United States is so different from other countries. *Health Affairs*, 22(3), 89–105.
- Angel, J. L., & Mudrazija, S. (2011). Raising the retirement age: Is it fair for low-income workers and minorities? *Public Policy and Aging Report*, 21(2), 14–21.
- Angel, R. J., Angel, J. L., & Montez, J. K. (2009). The work/health insurance Nexus: A weak link for Mexican-origin men. *Social Science Quarterly*, 90(5), 1112–1133.

- Angel, J. L., Montez, J. K., & Angel, R. J. (2011). A window of vulnerability: Health insurance coverage among women 55 to 64 years of age. *Womens Health Issues, 21*(1), 6–11.
- Angel, J. L., Vega, W., & López-Ortega, M. (2017). Aging in Mexico: Population trends and emerging issues. *The Gerontologist, 57*(2), 153–162.
- Angel, J. L., Angel, R. J., & Cantu, P. (2019). Medicaid use among older low-income medicare enrollees in California and Texas: A tale of two states. *Journal Health Politics, Policy and the Law, 44*(6), 885–910.
- Aranco, N., Stampini, M., Ibararán, P., & Medellín, N. (2018). *Panorama de envejecimiento y dependencia en América Latina y el Caribe*. Resumen de Políticas No. IDB-PB-273. Inter-American Development Bank (IDB).
- Arias, M. A., & Wen, Y. (2015). *Trapped: Few developing countries can climb the economic ladder or stay there* (pp. 5–9). The Regional Economist, October.
- Bird, C. E., & Rieker, P. P. (1999). Gender matters: an integrated model for understanding men's and women's health. *Social Science & Medicine, 48*(6), 745–755.
- Carr, D. (2019). *Golden Years?: Social Inequality in Later Life*. Russell Sage.
- Centers for Medicare and Medicaid Services. (2020a). *CMS fast facts: Program population data*. Centers for Medicare and Medicaid Services. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/CMS-Fast-Facts>
- Centers for Medicare and Medicaid Services. (2020b). *Information on Essential Health Benefits (EHB) benchmark plans*. Centers for Medicare and Medicaid Services. <https://www.cms.gov/CCIIO/Resources/Data-Resources/ehb>
- Centers for Medicare and Medicaid Services. (2020c). *Medicare history*. Centers for Medicare and Medicaid Services. <https://www.cms.gov/About-CMS/Agency-Information/History>
- Centers for Medicare and Medicaid Services. (2020d). *National health expenditure data: History*. Centers for Medicare and Medicaid Services. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical>
- Chow, N., Fleming-Dutra, K., Gierke, R., Hall, A., Hughes, M., Pilishvili, T., & Ritchey, M. (2020). Preliminary estimates of the prevalence of selected underlying health conditions among patients with coronavirus disease 2019—United States, February 12–March 28, 2020. *Morbidity and Mortality Weekly Report, 69*(13), 382.
- Cilluffo, A., & Ruiz, N. G. (2019). *World's population is projected to nearly stop growing by the end of the century*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2019/06/17/worlds-population-is-projected-to-nearly-stop-growing-by-the-end-of-the-century/>
- Coleman, D. (2006). Immigration and ethnic change in low-fertility countries: A third demographic transition. *Population and Development Review, 32*(3), 401–446.
- Collins, S. R., Bhupal, H. K., & Doty, M. M. (2019). *Health insurance coverage eight years after the ACA: Fewer uninsured Americans and shorter coverage gaps, but more underinsured*. The Commonwealth Fund. <https://www.commonwealthfund.org/publications/issue-briefs/2019/feb/health-insurance-coverage-eight-years-after-aca>
- Congressional Budget Office. (2017). *Measuring the adequacy of retirement income: A primer*. Congressional Budget Office (CBO). <https://www.cbo.gov/publication/53191>
- Connor, P., & Krogstad, J. M. (2018). *Many worldwide oppose more migration—Both into and out of their countries*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2018/12/10/many-worldwide-oppose-more-migration-both-into-and-out-of-their-countries/>
- Cotlear, D. (2010). *Population Aging: Is Latin America Ready?* World Bank Group.
- D'Addio, A. C., & d'Ercole, M. M. (2005). *Trends and determinants of fertility rates: The role of policies*. OECD Social, Employment and Migration Working Papers No. 27. Organisation for Economic Co-operation and Development.
- Derviş, K. (2018). *The future of economic convergence*. The Brookings Institution.
- Dutta, A., Ward, K., & Sharma, S. (this volume). "Funding of population policies and programs." Chapter 23. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Esping-Andersen, G. (2015). Welfare regimes and stratification. *Journal of European Social Policy, 25*(1), 124–134.
- FAO. (2013). *The state of food and agriculture*. Food and Agriculture Organization.
- Figliuoli, L. U., Flamini, V., Galdamez, M., Lambert, F., Li, M., Lissovolik, B., Mowatt, R., Puig, J., Klemm, A. D., Klemm, M., Soto, M., Thomas, S., Freudenberg, C., & Orthofer, A. (2018). *Growing pains: Is Latin American prepared for population aging?* Western Hemisphere Department Paper Series No. 18/05. International Monetary Fund.
- Figueroa, J. F., Lyon, Z., Zhou, X., Grabowski, D. C., & Jha, A. K. (2018). Persistence and drivers of high-cost status among dual-eligible Medicare and Medicaid beneficiaries: An observational study. *Annals of Internal Medicine, 169*(8), 528–534.
- Garcia, A., & Wong, P. (2018). *Towards successful aging in Asia*. Milken Institute.
- Glinskaya, E., & Feng, Z. (2018). Overview. In *Options for aged care in China: Building an efficient and sustainable aged care system* (pp. 1–78). World Bank Group.
- Grogan, C. M. (2017). How the ACA addressed health equity and what repeal would mean. *Journal of Health Politics, Policy and Law, 42*(5), 985–993.

- Gutiérrez-Robledo, L. M. (2002). Looking at the future of geriatric care in developing countries. *The Journals of Gerontology: Series A*, 57(3), M162–M167.
- He, W., Goodkind, D., & Kowal, P. (2016). *An aging world: 2015*. In *International population reports*. U.-S. Census Bureau.
- Institute of Medicine. (2001). *Coverage matters: Insurance and health care*. National Academy Press.
- Jackson, R., Strauss, R., & Howe, N. (2009). *Latin America's aging challenge*. Center for Strategic and International Studies.
- Jacobs, L. R., & Skocpol, T. (2016). *Health care reform and American politics: What everyone needs to know* (4th ed.). Oxford University Press.
- Kaiser Family Foundation. (2016). *10 FAQs: Medicare's role in end-of-life care*. Kaiser Family Foundation. <https://www.kff.org/medicare/fact-sheet/10-faqs-medicares-role-in-end-of-life-care/>
- Kaiser Family Foundation. (2020). *Women's health insurance coverage*. Kaiser Family Foundation. <https://www.kff.org/womens-health-policy/fact-sheet/womens-health-insurance-coverage-fact-sheet/>
- Kuate Defo, B. (2014). Demographic, epidemiological, and health transitions: Are they relevant to population health patterns in Africa? *Global Health Action*, 7(1), 22443. <https://doi.org/10.3402/gha.v7.22443>
- Lee, R. D., & Mason, A. (2011). The price of maturity: Aging populations mean countries have to find new ways to support their elderly. *Finance & Development*, 48(2), 6–11.
- Lesthaeghe, R. (2014). The second demographic transition: A concise overview of its development. *Proceedings of the National Academy of Sciences*, 111(51), 18112–18115.
- Litman, T. J., & Robins, L. (1971). Comparative analysis of health care systems—a socio-political approach. *Social Science & Medicine*, 5(6), 573–581. [https://doi.org/10.1016/0037-7856\(71\)90005-9](https://doi.org/10.1016/0037-7856(71)90005-9)
- López González, A., & González-González, M. J. (2018). Third demographic transition and demographic dividend: An application based on panel data analysis. *Bulletin of Geography. Socio-economic Series*, 42, 59–82.
- Manchikanti, L., Helm Ii, S., Benyamin, R. M., & Hirsch, J. A. (2017). Evolution of US health care reform. *Pain Physician*, 20(3), 107–110.
- Miles, T. P. (2012). *Health care reform and disparities: History, hype, and hope*. ABC-CLIO.
- Mudrazija, S., & Angel, J. L. (2014). Diversity and the economic security of older Americans. In R. B. Hudson (Ed.), *The new politics of old age policy* (3rd ed., pp. 138–154). Johns Hopkins University Press.
- Mudrazija, S., & Butrica, B. A. (2017). *Homeownership, social insurance, and old-age security in the United States and Europe*. CRR Working Paper 2017–15. Center for Retirement Research at Boston College.
- Mudrazija, S., Angel, J. L., Cipin, I., & Smolic, S. (2020). Living alone in the United States and Europe: The impact of public support on the independence of older adults. *Research on Aging*, 42(5–6), 150–162.
- National Association of Insurance Commissioners & The Center for Insurance Policy and Research. (2013). *The Patient Protection and Affordable Care Act: Section by section analysis*. National Association for Insurance Commissioners. [http://www.naic.org/index\\_health\\_reform\\_section.htm](http://www.naic.org/index_health_reform_section.htm)
- National Institute on Aging. (2007). *Why population aging matters: A global perspective*. No. 07–6134. U.-S. Department of Health and Human Services, National Institute on Aging.
- National Institute on Aging. (2011). *Global health and aging*. No. 11–7737. U.S. Department of Health and Human Services, National Institute on Aging.
- National Research Council. (2010). *Grand challenges of our aging society: Workshop summary: Chapter 4, Macroeconomic and financial impacts*. National Academies Press.
- National Women's Law Center. (2013). *Women and the health care law in the United States*. National Women's Law Center. [https://nwlc.org/wp-content/uploads/2015/08/us\\_healthstateprofiles.pdf](https://nwlc.org/wp-content/uploads/2015/08/us_healthstateprofiles.pdf)
- Notestein, F. W. (1945). Population: The long view, food for the world. In T. W. Schultz (Ed.), *Food for the world* (pp. 36–69). Chicago University Press.
- OECD. (2011). *Doing better for families*. Organisation for Economic and Co-operation Development, OECD Publishing.
- Ogura, S., & Jakovljevic, M. M. (2018). Editorial: Global population aging – Health care, social and economic consequences. *Frontiers in Public Health*, 6(335).
- Omran, O. (1971). The epidemiologic transition: A theory of the epidemiology of population change. *The Milbank Memorial Fund Quarterly*, 49(4), 509–538.
- Piatak, J. S. (2015). Understanding the implementation of Medicaid and Medicare: Social construction and historical context. *Administration and Society*, 49(8), 1165–1190.
- Polivka, L., & Luo, B. (2013). The future of retirement security around the globe. *Generations*, 37(1), 39–45.
- Span, P. (2020). *Do you want to die in an I.C.U.? Pandemic makes question all too real*. <https://www.nytimes.com/2020/04/24/health/coronavirus-icu-advanced-directives.html>
- Starr, P. (1982). *The social transformation of American Medicine*. Basic Books.
- U.S. Census Bureau. (2018). *Older people projected to outnumber children for first time in U.S. history*. U.-S. Census Bureau. <https://www.census.gov/newsroom/press-releases/2018/cb18-41-population-projections.html>
- U.S. Office of Personnel Management. (2019). *Paid parental leave for federal employees*. Office of Personnel Management. <https://www.chcoc.gov/content/paid-parental-leave-federal-employees>
- U.S. Supreme Court. (2014). *King et al. v. Burwell, Secretary of health and human services et al.* U.S. Supreme Court. [https://www.supremecourt.gov/opinions/14pdf/14-114\\_qoll.pdf](https://www.supremecourt.gov/opinions/14pdf/14-114_qoll.pdf)
- Uhlenberg, P. (2013). Demography is not destiny: The challenges and opportunities of global population aging. *Generations*, 37(1), 12–18.

- United Nations. (2015a). *How has the Netherlands managed to sustain near-replacement fertility?* Policy Brief No. 12. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2015b). *Regional variations in fertility trends and policies in Canada.* Policy Brief No. 4. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2015c). *Below-replacement fertility in China: Policy response is long overdue.* Policy Brief No. 5. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2017a). *The end of high fertility is near.* United Nations, Department of Economic and Social Affairs, Population Division. [https://population.un.org/wpp/Publications/Files/PopFacts\\_2017-3\\_The-end-of-high-fertility.pdf](https://population.un.org/wpp/Publications/Files/PopFacts_2017-3_The-end-of-high-fertility.pdf)
- United Nations. (2017b). *World population prospects: The 2017 revision.* United Nations, Department of Economic and Social Affairs, Population Division. <https://www.un.org/development/desa/publications/world-population-prospects-the-2017-revision.html>
- United Nations. (2019a). *World population ageing 2019: Highlights.* United Nations, Department of Economic and Social Affairs, Population Division. <https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Report.pdf>
- United Nations. (2019b). *World population prospects 2019, population data, file: Population by broad age groups-both sexes.* United Nations, Department of Economic and Social Affairs, Population Division. <https://population.un.org/wpp/Download/Standard/Population/>
- van de Kaa, D. J. (1987). Europe's second demographic transition. *Population Bulletin*, 42(1), 1–59.
- Wang, D. (2018). Policy framework, strategy and institutional arrangements. In *Options for aged care in China: Building an efficient and sustainable aged care system* (pp. 101–127). World Bank Group.
- World Bank. (2019). *Population ages 65 and above.* World Bank Group. <https://data.worldbank.org/indicator/SP.POP.65UP.TO>
- World Bank. (2020). *Fertility rate, total (births per woman)-China.* World Bank Group. <https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?locations=CN>



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Population aging results from increased life expectancy and reduced birth rates. In some small countries, such as Albania, it results also from out-migration of workers due to people having better job opportunities elsewhere. This chapter analyzes issues relating to population aging and policies relating to the provision of retirement income. The analysis is based in part on the recognition that the old-age dependency ratio (the ratio of retirees to workers) acts as a shadow price for Social Security benefits (Turner, 1984).

## The Interaction Between Pension Policies and Birth Rates

Retirement income for people no longer working can come from three sources. First, traditionally, children were the means of support for people in old age, a situation that continues in some less developed countries and regions. Children were the old-age Social Security for their parents. For that reason, declines in birth rates raised the need for a second source of retirement security—

government-provided Social Security old-age benefits programs. The development of government-provided Social Security old-age benefits programs, however, reduced the need for having large families, arguably reducing birth rates. Besides adult children and pay-as-you-go Social Security programs, funded savings, either individually or through pension programs is the third possible source of income in retirement. For some people, retirement is not a binary state (either in or out), and continued work is combined with partial retirement.

When birth rates first start to fall, that raises the demand for Social Security programs as an alternative to traditional reliance in old age on adult children. As birth rates continue to fall, the old-age dependency ratio – the ratio of old-age beneficiaries to workers – rises, raising the cost of providing benefits through pay-as-you-go Social Security programs and shifting reliance onto funded sources of retirement income.

Retirement income systems are often characterized as having multiple programs in different tiers, with different policy analysts differing as to exactly what programs are categorized in which tiers. One commonly used approach is that the first tier is a mandatory government-provided Social Security program. The second tier is a voluntary or mandatory funded program. The third tier is voluntary retirement savings by individuals (Gillion et al., 2000).

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I have received helpful comments on part of this chapter from Marion Boisseau-Sierra and Didier Blanchet.

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## Population Aging and Less Developed Countries

While it is well-known that populations are aging in high-income countries, in less developed countries population aging is occurring currently more rapidly (on average) than in more developed countries (ILO, 2011). This change in less developed countries is due both to rising life expectancy and falling birth rates. Many older people in less developed countries work in the informal sector and have little or no opportunity for making contributions to a Social Security program.

By 2050, it is projected that 80% of the world's population age 65 and older will live in low-income countries (Grandolini, 2016). As low-income countries become more urbanized, with young adults leaving rural areas and finding work in cities, and families having fewer children, traditional family-based care for older persons is breaking down. A growing trend is the development of social pensions, which are cash transfers to older people.

Worldwide, 68% of people above retirement age receive an old-age pension, thus leaving about a third without a pension. However, benefit levels are often low and are not sufficient to lift people out of poverty (ILO, 2019). Nonetheless, this situation is an improvement from 2000, when it was reported that 90% of the world's population did not have a government-provided old-age pension that was sufficiently generous to keep them out of poverty (Gillion et al., 2000; ILO, 2000). In this respect, Kenya for example has developed an innovative program where anyone with a cell phone can establish a pension account and can contribute very small amounts, less than one dollar, to these accounts at any time (Kwena & Turner, 2013).

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## Population Aging and Pay-As-You-Go Social Security

Should Social Security benefits be raised because they are relatively low in some countries, such as

the United States? Or should they be lowered as part of a reform package to restore solvency? While these questions are ultimately political, since either approach is economically feasible, this chapter argues that economics has something to say about the likely outcome. This chapter presents a model in the Appendix based on shadow prices and constraints that permits an analysis of Social Security reform using standard price theory.

While a number of countries have converted their Social Security systems to include defined contribution plans, starting with Chile in 1981, most countries retain traditional pay-as-you-go systems. Because of population aging, which raises the old-age dependency ratio, these traditional systems are under stress. Countries are questioning whether they can afford to maintain the generosity of their Social Security old-age benefits. Advocates of defined contribution plans have criticized traditional pay-as-you-go Social Security systems as being financially unsustainable.

Since the late 1990s, starting with an innovative reform in Sweden, a growing number of countries have reformed their traditional Social Security systems to include automatic adjustment mechanisms. A number of different adjustment mechanisms have been developed. Both types of reforms provide automatic adjustment mechanisms for sustaining the solvency of Social Security systems, but most of them do not assure solvency over the long run, requiring additional adjustments. A benefit formula or automatic adjustment mechanism that is financially sustainable may not be politically sustainable if it leads to reductions in the benefit replacement rate that are politically unacceptable.

## Previous Literature

The basic conditions concerning financing pay-as-you-go Social Security from the perspective of optimality of resource use were developed by Samuelson (1958) and extended by Aaron (1966). Pay-as-you-go Social Security can improve welfare if the sum of the rate of

population growth plus real wage growth exceeds the real interest rate. Munnell (1989) and others discuss the related question of whether Social Security should be funded, instead of being financed on a pay-as-you-go basis. Börsch-Supan et al., (2003) investigate the effect of various adjustments to the Social Security benefit formula and payroll tax rates to maintain solvency. Turner (2007a) investigates automatic adjustment mechanisms for maintaining Social Security solvency. Cipriani and Pascucci (2020) review the literature and present a model analyzing the effects of pension policies on fertility rates. They argue that raising the retirement age could decrease the ratio of capital to labor, which could further reduce the fertility rate.

Because retirement income systems are subject to economic, demographic, financial, and policy risks, Whitehouse (2009) writes that “old age security is best maintained through diversified pension provision.” In particular, having a multi-tier retirement income system is one way of dealing with demographic risks. Pay-as-you-go retirement income systems are subject to demographic risks associated with population aging. Demographic risks affect pay-as-you-go pension systems through the old-age dependency ratio, which is the ratio of retirees to workers. Thus, they have their effect in part through the labor market. Funded retirement income systems are subject to capital market risks. China, for example, is moving toward a multi-tier retirement income system with a greater role of funding as a way of dealing with population aging (Chen & Turner, 2020).

### Political Sustainability

A Social Security benefit formula that is financially sustainable may not be politically sustainable. In particular, the requirement that the replacement ratio or benefit generosity level decline over time may eventually cause benefits to fall to a level of generosity that is not politically acceptable to a majority of voters. This outcome suggests policy adjustments based on the prediction that a declining replacement rate at some point is not politically sustainable.

While the dynamic benefit formula of Eq. 26.14 (see Appendix) is sustainable in a budgetary sense, it implies a declining replacement ratio over time, and thus may not be sustainable in a political sense over a long period. Further adjustments may be needed to maintain the generosity of Social Security benefits, such as gradually increasing the eligibility age for Social Security benefits over time. Raising the eligibility age may be justified as life expectancy and health at older ages continue to improve, while the percentage of the workforce subject to physically demanding jobs is declining. Such an adjustment, however, would need to take into consideration the needs of workers unable to continue working due to unemployment, the physical difficulty of their work, or their own health. A number of countries have made this change (Turner, 2007b). However, this change can penalize workers who are no longer able to work—often those at the lower end of the income scale whose jobs are low skilled or are involving physical labor. Thus, other changes in programs may be needed as well, such as, perhaps, changes in disability insurance programs.

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## Social Security Reforms

### Raising the Normal Retirement Age: Canada vs. the U.S.

Promoting active aging has been on the agenda for some time in a number of countries, considering that “giving people better choices and incentives to continue working at an older age is crucial for responding to the challenges of rapid population ageing” (OECD, 2019). The European Union has promoted Active Ageing and the Organisation for Economic Co-operation and Development (OECD) has encouraged governments to introduce policies designed to extend working life as a response to increased life expectancy and increased pension costs (Leime, 2019; see also Chap. 14: *Europe: Low Fertility, Aging, and Migration Policies* of this *Handbook* [Ambrosetti, this volume]).

In the face of population aging, not all countries have enacted reforms that reduce

benefits. Canada has actually increased benefits. The full retirement age with respect benefit receipt has not been raised, as has been done in the U.S., and remains at age 65. Pensions have not been reduced and in fact future Social Security benefits will be increased. All earnings restrictions have been dropped relating to entitlement to receive benefits, making it possible to draw a pension while working. Canada made such changes in the context of the late 1990s where many people were claiming their Social Security pension at age 60, well before the full retirement age of 65, and where partial retirement was seen as a valuable option to allow people to stay longer in the labor market. During the same period, Canada decided to increase contribution rates of Social Security rather than to reduce benefits. Canadian Social Security pensions pay a Social Security pension as early as 60, whereas the minimum entitlement age is 62 in the U.S. (Latulippe & Turner, 2020).

In the U.S., the Social Security full retirement age started to increase in 2003: from 65 in 2002 to 66 years in 2009. It will remain at 66 until 2020, starting to increase again in 2021, two months per year, to reach 67 years in 2027. The effective claiming age of new beneficiaries increased steadily from 63.2 in 2002 to 64.6 years in 2017. In other words, claiming age went up along with the increase of the full retirement age. In 2016, people claimed 1.6 years prior to the full retirement age (66 vs. 64.4), which is close to the situation in 2002, when the gap was at 1.8 years (65 vs. 63.2). When looking at the claiming experience on an annual basis, the gap between the full retirement age and the effective entitlement age increased between 2003 and 2009 when OASDI<sup>1</sup> full retirement age was increasing from 65 to 66 years. In those years, the mean retirement age has increased by about half as much as the increase in the full retirement age (Mastrobuoni, 2009: 1224).

By comparison, the full retirement age remained unchanged in Canada at 65 years, and the benefit claiming age remained stable, rather than rising as it did in the U.S. The benefit claiming age was 62.4 in 2017 vs. 62.2 in 2002. Workers claimed their Social Security pension 2.6 years before the full retirement age in 2017, compared with 2.8 years in 2002 (Latulippe & Turner, 2020). Thus, the comparison of the experience in the U.S. and Canada suggests that differences across countries in retirement age policies do affect the actual ages at which people retire and thus affect the effective old-age dependency ratio.

### Raising the Early Retirement Age

Unlike Canada and the U.S., over time, a number of countries have raised the early retirement age for their Social Security programs. The U.S. is unusual in the length of time since it has raised its early retirement age. Table 26.1 provides data on the number of years since various countries raised their early retirement age. The countries in the table are for the most part relatively-high income countries that are members of the OECD. However, the selection of countries is a convenience sample and is not designed to be representative of any group of countries, but rather to provide examples of the policies of some other countries.

An early retirement age of 63, one year older than in the U.S., has many international precedents. The countries listed in Table 26.2 are chosen as examples of countries with a higher early retirement age for Social Security than the age in the U.S. In Germany, for example, the early retirement age is 63, while in the United Kingdom it is currently 66. It will be raised to age 67 for both men and women by 2028. In Switzerland, the earliest age for receipt of Social Security benefits is 65 for men and 63 for women. In New Zealand, it is 65 for both men and women (U.S. Social Security Administration, 2018; Turner, 2007b). Thus, international precedent in countries that are arguably similar to the U.S. supports the policy of raising the early retirement age for Social Security to age 63.

<sup>1</sup> The Old-Age, Survivors, and Disability Insurance (OASDI) program is the official name of the U.S. Social Security.



**Table 26.1** Year of last change in social security benefit eligibility age, selected countries, 2018

Country	Year of last change in Social Security benefit eligibility age	Inertia index: 2018 (number of years since last change for Social Security pensions)
United States	1961	57
China	1951	67
Canada	1987	31
Sweden	1998	20
Ireland	2018	0
Poland	2015	3
France	2015	3
United Kingdom	2018	0

Source: Turner & Klein, 2016 (updated)

**Table 26.2** Social security earliest retirement age in select countries, 2018

Country	Age
United States	62
Germany	63
Switzerland	65 (men, 63 for women)
New Zealand	65
United Kingdom	65 (reaching 66 in 2020 and 67 in 2028)
Ireland	66 (rising to 68 by 2028)

Source: U.S. Social Security Administration, 2018

## Social Security Privatization

One type of reform that has been pursued by some countries as a way to deal with population aging is Social Security privatization. With this type of reform, a traditional unfunded Social Security program is fully or partially replaced by a funded program, with Chile in 1981 leading the way. A number of countries in Latin America and in Central and Eastern Europe have followed this approach. However, recently some countries have found that this approach did not meet its promises and have reversed the privatization. These countries include Bolivia, Argentina, Poland, Hungary, and Kazakhstan (ILO, 2019).

A variation on the approach of privatization involves Notional Defined Contribution plans. These plans are sometimes called Nonfinancial Defined Contribution plans. These plans are financed on a pay-as-you-go basis, but the benefits are determined through credits to individual accounts. These plans have some automatic stabilization features. The crediting rate to the accounts decreases with decreases in GDP

growth. Benefits at retirement are automatically adjusted for previous increases in longevity. Latvia, Poland, Italy, and Sweden have adopted this type of plan.

A different approach that is particularly well-suited for low-income countries is to provide a universal basic pension for all people over a certain age. This approach has been adopted by Mauritius, Namibia, Botswana, Nepal, and Kosovo (Willmore, 2007). These programs do not involve previous contributions by recipients, are not means-tested, and focus on poverty reduction.

## Social Security Reform in Canada, Germany, Sweden, and the United Kingdom

This section considers Social Security reforms to maintain solvency in four high-income countries: Canada, Germany, Sweden, and the United Kingdom (Turner & Rajnes, 2016).

**Raising Revenues** When a Social Security program is facing insufficient financing, which can be caused by population aging, Social Security revenues can be increased by raising the contribution rate or the contribution base, or by seeking other sources of revenues not related to the workers' earnings.

All four countries have raised their Social Security contribution rates since the year 2000. In the United Kingdom in 2002, Social Security benefits were financed by contributions of 10% by employees and 11.9% by employers (21.9% total). Beginning in 2011, those rates rose to 12% for employees and 13.8% for employers. However, the rate of 1% on earnings above the ceiling had been added starting in 2003, and was increased to 2% beginning in 2011 (Seely, 2015; Willis Towers Watson, 2014). In Canada in 2002, the contribution rate was 9.4%, and the following year it rose to 9.9% (Proccounting, 2013). In Germany, contribution rates are projected to increase in the future. In Sweden, contribution rates increased as part of the reform enacted in 1998.

Some countries have increased revenues by raising the ceiling on the contribution base. The United Kingdom has eliminated the ceiling for the employer contribution. In addition, it has eliminated the ceiling for employee contributions, but employees contribute above the previous ceiling at a reduced rate of 2% of pay. Raising the ceiling allows greater revenues to be received without raising payroll tax rates, with higher-income persons contributing more.

**Investing Trust Fund Assets in Financial Markets** The Canada Pension Plan (CPP) invests its trust fund in a wide range of assets, including public and private equities, corporate and government bonds, private debt, infrastructure, and real estate. In 2015, 50% of its investments were in equities, 33% in fixed income, and 17% in real assets, including real estate (CPP Investment Board, 2015a).

The investments are managed by the Canadian CPP Investment Board (CPPIB), which is a

professional investment management organization that is independent of political influence (CPP Investment Board, 2015b). An issue with the investment of trust fund assets in the stock market is assuring the independence from political intervention of the Investment Board. Canada has achieved independence from political influence through the governance structure of the Investment Board, which is accountable to an independent Board of Directors. It also has had the political will to maintain the nonpolitical nature of the Investment Board.

**Cutting Benefits for Current Retirees** Traditionally, Social Security benefit cuts generally did not affect retirees because older retirees often cannot adjust to benefit cuts by returning to employment. That policy of protecting current beneficiaries, however, has changed in some countries, with benefit reductions for retirees resulting from changes in benefit indexation.

For example, the United Kingdom decided in 2010 to index State Second Pension benefits in payment by the Consumer Price Index rather than the Retail Price Index (Inman, 2010). The Consumer Price Index, considered to be a more accurate measure of inflation for retirees, generally results in smaller measured increases in price levels, and thus smaller nominal benefit increases in retirement.

**Raising Early and Normal Retirement Ages** Because of increasing life expectancy, a number of countries have increased their Social Security retirement ages to reduce the fiscal burden on Social Security financing and encourage people to work longer.

In Canada, the benefit eligibility age is set to increase from 65 to 67 years for both the Old-Age Security and Guaranteed Income Supplement programs (U.S. Social Security Administration, 2012); it will gradually increase starting in April 2023 by one month every two months, until it reaches age 67 in January 2029. However, Prime Minister Trudeau reversed that change, which was legislated by a previous government.

His reversal shows the political difficulty of making this type of reform (Canadian Press, 2016).

In Germany, early retirement benefits can be received at age 63 for those with at least 35 years of covered earnings. However, the actuarial reduction for retirement at age 63 has been increasing since 2012 because of an increase in the statutory retirement age: it had been age 65, but in 2014 it rose to age 65 and three months. Benefits could be received at age 65 and four months in 2015 for those with at least five years of covered earnings. That age is rising gradually to age 67 by one month each year until 2024 and by two months a year until 2029, reaching age 67 for those born after 1964. A special length-of-service pension is paid at age 65 to those workers with 45 years of contributions, which would be a full career starting at age 20 (U.S. Social Security Administration, 2014a). That pension can temporarily be received at age 63. Beginning in 2016, that age is rising by two months a year until it returns to age 65 (U.S. Social Security Administration, 2014b). In addition, early retirement benefits can be received at age 63 for workers who have been unemployed or who have had part-time employment and have had at least 15 years of contributions.

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## The Reform Process

To understand Social Security policies relating to population aging, it is necessary to consider the politics and behavioral economics of Social Security reform.

## The Politics of Raising Social Security Entitlement Ages

The possible policy responses to population aging are limited to three basic options. First, more revenue can be brought into the system, usually through contributions by workers and employers, but sometimes also by governments. Revenue can be increased by raising tax rates or expanding the tax base, such as by raising or eliminating the

ceiling on taxable wages. Second, benefits can be cut. This can be across-the-board cuts, or cuts targeted to certain groups, such as high-income beneficiaries. Third, the age at which benefits can be received can be raised.

Uncertainty as to the future level of benefits provided by the U.S. Social Security program because of its projected insolvency is a risk to many workers participating in the system. Without program reforms, the U.S. Social Security program is projected to have insufficient funds to pay fully for promised benefits in the early 2030s. Because of the projected insolvency, current workers and retirees may receive less benefits in retirement than they were expecting. Policy risk is the risk as to the nature of future reforms and the resulting unpredictability of future benefits for workers trying to plan for retirement. Diamond (1994) argues that policy risk is one of the biggest problems facing the U.S. Social Security system, meaning the risk as to future benefit levels that arises due to policy making or, in this case, lack of policy making.

Social Security reforms in the early years of Social Security programs were relatively easy to pass, when the level of the payroll tax rate was low and the reforms increased the generosity of benefits. Reforms in the era of retrenchment are difficult because they require benefit cuts or tax increases or both. In the U.S. and possibly in other countries, political polarization is increasing (Pew Research Center, 2014), which also makes Social Security reform more difficult. Democrats and other liberals generally favor restoring solvency through tax rate increases and oppose benefit cuts, and some even arguing for an expansion of Social Security. Republicans and other conservatives generally favor restoring solvency through benefit cuts, though sometimes with selective benefit increases for vulnerable groups, and oppose tax rate increases.

One of the innovations of behavioral economics is developing the concept of inertia as it applies to human behavior. The concept of inertia in the physical sciences has been applied to the behavior of individuals failing to make desirable changes because they are resistant to change that involves short-term costs for long-term benefits

(Madrian & Shea, 2001; Choi et al., 2002; see also Turner, Klein, and Stein [2016] for an example of lack of inertia, when inertia would have been desirable).

This chapter applies the concept of inertia to the political process in the U.S. Congress with respect to Social Security reform to deal with population aging. In this case, the short-term costs to politicians are the increased risk as to their chance for re-election. The long-term benefits are for the participants of Social Security, who are better off when Social Security reform is done on a timely basis.

Thus, this problem has similarities to the agency problem, where the agent (in this case, U.S. Congress) has different incentives than the client (Social Security participants), and for that reason may not always act in the best interest of the client (which would be timely Social Security reform). In some cases, the agency problem is addressed by requiring that the agent have a fiduciary duty to the client. The U.S. Congress does not have a fiduciary duty to act in the best interests of Social Security participants, but such a standard could be proposed. The problem is further complicated by the short-term versus long-term interests of the client—the participants in Social Security, an issue discussed further later.

In U.S. Congress and parliaments, however, inertia with respect to the effects of population aging on the financing of Social Security programs is not just the result of individual behavior. It also results from political party considerations as to legislative priorities, given agenda limitations as to the number of issues U.S. Congress or parliament can address at any time. Another factor is the strategic interaction of the political parties in their efforts for re-election. Thus, while some aspects of the analysis of individual behavior may apply, other issues relating to the political process also are relevant.

Inertia is an extreme form of under-reaction to a problem. Social Security policy inertia is an aspect of presidential or national politics as well as Congressional or parliamentary politics. The lack of meaningful discussion in the 2016 and 2020 U.S. presidential campaigns about

reforming Social Security suggests that the problem of Social Security financing may not be solved anytime soon. None of the major candidates have provided a detailed proposal for Social Security reform, with some indicating they would raise benefits, which would make solving the problem of the future insolvency more difficult. In addition, several members of the U.S. Congress made proposals for Social Security reform in 2016 and 2017 and more recently (U.S. Social Security Administration, 2017), but no action was taken on these proposals. While experts understand the costs of delay, it appears that the public generally does not. As a consequence, little public pressure is placed on politicians for timely Social Security reform, though some organizations, such as the Committee for a Responsible Federal Budget (2015, 2016) are advocating for timely reform.

Social Security in the U.S. has long been called the “third rail” of politics, a moniker coined by former House of Representatives Speaker Tip O’Neill. The “third rail” refers to the electrified rail of the Washington, DC subway system, which presumably causes death if you touch it. In this case, it refers to the major problems politicians face getting re-elected if they tackle Social Security reform.

With public policy done in the best interests of participants in Social Security programs, Social Security would be reformed quickly because the problem gets worse with delay, requiring larger benefit cuts and/or larger tax rate increases (Committee for a Responsible Federal Budget, 2016). Because the problem gets worse with delay, the process can be thought of as one of accumulating errors, where the cost of errors of lack of reform gets worse over time. As indicated in the Social Security Trustees report for 2014, with nearly an identical plea in the subsequent reports, and in Trustees reports going back more than a decade, needed reforms are less drastic if they are done without further delay because the effects of the reforms are spread out over a longer time period and their effect is spread over more generations of workers. Realistically, however, under the current system of policy making, that is not likely to happen.

Policy inertia is the failure to change a public policy in the face of the future necessity to do so. The default for policy to reform the Social Security program is that no action is taken until a crisis forces U.S. Congress or parliament to act in order to prevent a benefit cut, which is what generally will happen if no action is taken.

Based on the incentives they face, from the personal perspective of members of U.S. Congress or parliament, however, the need for reform of Social Security is not immediate. They face little pressure from their constituents to deal with the problem of Social Security financing, which can only be solved with unpopular changes of benefit cuts and payroll tax rate increases. Because the Social Security financing crisis is far enough away to be outside of the likely tenure of many members of U.S. Congress or parliament, they can avoid facing the issue entirely and push it down the road for future politicians to deal with. Even for members of U.S. Congress or parliament who hope to be in office in 2034 or whenever a financing crisis is projected to occur, time discounting of an event that far off may make it seem like it is not important to deal with it currently. In these respects – no immediate need for making difficult changes – the cause of the inertia of members of U.S. Congress or parliament is similar, at least to some extent, to the cause of inertia for workers failing to save for retirement by not participating in a 401(k) plan. A 401(k) plan is an employer-provided defined contribution plan where typically the employer contributes if the employee contributes. It is the most popular type of employer-provided defined contribution plan in the U.S.

Several possible causes of inertia in the context of workers failing to enroll in a pension plan have been identified (e.g., Turner & Verma, 2007). Inertia can be due to inattention by workers as to the reasons for a change. It can be due to procrastination by workers, when a person recognizes that a change would be desirable, but that costs would be incurred to make the change, including the time and effort involved. Procrastination can be due to high discounting by workers of the future, so that future benefits have relatively little weight in making current decisions.

It can be due to high transactions costs in making a change, including investments in information. Abeler and Jäger (2015) in their study of the effects of complexity in taxes found that complexity of the decision environment is an important catalyst of behavioral anomalies, such as the status-quo bias and inertia. All of these causes of inertia for workers arguably are also causes of inertia for Social Security policymakers in U.S. Congress and parliament. In the case of U.S. Congress or parliament, one of the relevant costs is the political unpopularity of the needed changes, and the false scenario that no change is a superior option.

Political scientists argue that political gridlock is a weakness of the presidential form of government (Brady & Volden, 2006). With a parliamentary government, when the ruling party has a majority in Parliament, it is relatively easy to pass legislation that the Prime Minister wants. That would be similar to the situation when the president and the majority party in both the U.S. House of Representatives and the U.S. Senate are from the same party. Even with coalition governments involving multiple parties, there may be more pressure for consensus in the parliamentary form of government than in the presidential form, where the two parties have pressure for consensus within the party, but that may not lead to a sufficient number of votes to pass legislation, particularly when the two houses of Congress are controlled by different parties.

While it presumably is easier to pass Social Security reform legislation in a parliamentary system of government than in a presidential form, Fornero and LoPrete (2017) found that politicians often are punished for doing so in both forms of government. Turner and Klein (2016) discuss policy inertia in the context of the benefit eligibility ages for Social Security and the Military Retirement System. They note that historical data on the length of time between policy changes relating to Social Security retirement age indicates that policy inertia with respect to adjusting those benefit eligibility ages is considerably greater in the U.S. than in a number of other countries that have parliamentary systems of government.

Policy inertia concerning Social Security could occur in part because of the current era of Social Security retrenchment, with benefits being cut, rather than being increased as was the case early in the history of Social Security. Enacting policy to make Social Security more generous was easier than enacting policy to cut it back. Making Social Security more generous permitted credit claiming by politicians, while cutting benefits or raising taxes involves blame avoidance. Because earlier reforms have already cut benefits and raised taxes, further cuts in benefits and increases in taxes are more difficult.

The concept of salience refers to the extent to which the issue of Social Security reform stands out as an important issue. It appears from observing the various attempts of members of U.S. Congress to propose Social Security reform legislation that the problem is not entirely inattention but also the difficulty of U.S. Congress to agree on a reform in the absence of pressure to do so.

While inertia is seen as irrational and costly to workers not participating in 401(k) plans, it may be rational for politicians, taking into account their possibilities for re-election. Fornero and Lo Prete (2017) discussed factors affecting the political cost to politicians of making needed Social Security reforms. In a cross-country empirical study, they found a political cost to politicians in terms of probability of re-election, but that the cost is lower in countries where the level of financial literacy is higher, presumably because people have a better understanding of the need for reforms.

Steuerle (2014) argued that the gridlock in U.S. Congress concerning Social Security reforms that involve tax increases or benefit cuts is due to the “prisoner’s dilemma” (see also Steuerle & Bakija, 1994). The prisoner’s dilemma is an aspect of inertia in U.S. Congress that does not play a role in inertia in individual decision making concerning 401(k) participation.

In game theory, the prisoner’s dilemma is a dilemma of trust and self-interest in a two-player game. For example, if two people are arrested for a crime that both committed, and they are interrogated separately so that they cannot confer

on a strategy of testimony, if neither testifies against the other, their likely punishment is reduced. However, if one does not testify against the other, but the other does testify, then the one that does not testify is likely to get a harsher punishment and the one that does testify is likely to get a more lenient punishment. If both testify against the other, then the both are likely to get harsher punishments.

The logic of the prisoner’s dilemma can be applied to the process of Social Security reform. If both political parties accept a package of benefit cuts and tax increases, both changes incurring the displeasure of different segments of the electorate, the “punishment” of both parties through the electoral process will likely be mild. However, if one party proposes and implements such a package and the other opposes it, the implementing party is likely to be punished by the electorate, as suggested by the empirical research of Fornero and LoPrete (2017).

Social Security politics differs, however, in important ways from the scenario of the prisoner’s dilemma. The two parties can confer; and they, in principle, can decide on a strategy of balanced reform. However, with the deadline for reform being many years away, neither side seems to be willing to compromise. They both seem to take the strategy of letting the other side propose and enact a reform, with the non-reforming side criticizing the reform. The reality, however, is that neither side is seriously considering reform, and none of the 2016 or 2020 presidential candidates have treated it as a major issue.

Another major difference from the prisoner’s dilemma is that the punishment is by the electorate. This aspect of the dilemma seems to confirm the saying that “we get the government we deserve”. If the electorate rewarded political parties for taking responsible steps to reform Social Security, the prisoner’s dilemma would not occur. Stated another way, following Fornero and Lo Prete (2017), if the electorate had a higher level of financial sophistication, and thus a better understanding of the need for reform, even though the reform necessarily involves unpopular changes, electoral punishment for needed reform would be less likely.

The Committee for a Responsible Federal Budget (2016) makes the case that it is important to overcome inertia and to reform Social Security as soon as possible. It argues that it is a myth that Social Security reform can be postponed without serious consequences. It notes that if Social Security insolvency was addressed by benefit cuts, the cuts would need to be 16% in 2016, 20% if postponed to 2026 and 23% if postponed to 2034. If the benefit cuts excluded people currently receiving benefits and only applied to people retiring after the benefit cuts, the cuts would need to be 20% in 2016, 33% in 2026, and it describes the cuts as impossible to restore solvency in 2034. If the reform exempted people age 55 and older, and if it was phased in, both reasonable options, the ultimate increase in benefit cuts would be even larger.

After studying the Swedish Social Security reform of the late 1990s, Weaver and Willén (2013) concluded that reform may be easier to enact when it is complex and opaque, and thus its costs and benefits are not well understood by the electorate. Fornero and Lo Prete (2017) argue that such an approach may be necessary when the electorate has a relatively low level of financial literacy, and does not understand the need for reform. Weaver and Willén (2013) also argue that automatic adjustment mechanisms are likely to be effective when the adjustments are done frequently with each one being small, so that their effects are less noticeable. The Swedish experience also indicates that politicians are unlikely to accept automatic adjustments that involve cuts in nominal benefits, but cuts in real benefits may be possible.

One reason for policy inertia may be that some policy analysts and politicians think that inertia will work in their favor in terms of getting the reform they want. For example, Schieber (2012) cites Dean Baker, a liberal, who argues that with a reform at the last moment, tax increases are more likely than for a reform that occurs earlier. On the other hand, some conservatives may believe that a reform at the last moment will result in larger benefit cuts than a reform enacted earlier.

Because of relatively favorable demographics at the time of the last major U.S. Social Security

reform in 1983, measured by the old-age dependency ratio, the changes made to Social Security needed to restore solvency were less drastic than the changes needed now. In 1983, for every beneficiary there were 3.2 workers paying Social Security payroll taxes. By 2030, there will only be two workers per beneficiary (Clancy, 2015). This relationship means that it will be much more difficult politically and economically to make up the benefit shortfall in 2034 than it was in 1983, when there was a lower old-age dependency ratio. To be precise, taking the ratio of the old-age dependency ratio in 2034 to that in 1983 shows that it will be 60% more costly for workers ( $3.2/2.0 - 1$ ), per dollar of benefit increase, to pay for increased benefits above those already funded. Because funded benefits in the future are less than promised benefits, an increase in benefits above what is currently funded is needed to avoid cuts in promised benefits.

In 1983, the shortfall in financing was 1.80% of taxable payroll (Greenspan Commission, 1983). By comparison, a reform done at the last moment in 2034 would need to raise the payroll tax rate from 12.4% to 16.8%—an increase of 4.4% of taxable payroll (Committee for a Responsible Federal Budget, 2013).

One of the uncertainties about Social Security reform is who it will affect. If benefits are cut, the cuts could be structured to affect only people younger than some pre-retirement age, such as 55, or the cuts could affect current retirees. In 2016, if the date of insolvency is 2034, and the future cuts affect retirees, even people currently as old as age 70 or older, depending on their life expectancy, would face the risk of benefits cuts. Thus, the possible future Social Security benefits of all current workers and many retirees could be lower than those currently projected by Social Security in its benefits calculators, but by how much lower is unclear.

Uncertainty exists as to whether benefit cuts would affect people who are already beneficiaries. For example, the cost-of-living adjustment could be made less generous, as was proposed by U.S. President Obama in moving to the chained Consumer Price Index (CPI), which is a less generous, but more accurate, form of price

indexing than the one being currently used (Boccia & Greszler, 2013). In that case, people in their late sixties would face uncertainty that their possible future benefits will be less than currently projected. Thus, people in their fifties and early sixties who are trying to plan for their retirement, as well as people younger than those ages, face difficulty making plans, given the uncertainty surrounding their future level of Social Security benefits. A 2005 survey found that only one-fifth of individuals age 50 and older felt that they had engaged in successful retirement planning (Lusardi & Mitchell, 2005). However, the question might be asked as to how anyone could engage in successful retirement planning who depended on Social Security, given the uncertainty surrounding the benefits it will provide in the future.

Policy inertia in dealing with the effects of population aging on Social Security financing, and the resulting insufficiency of Social Security's funding, may be a factor causing a lack of confidence in Social Security's ability to provide promised benefits. In 2015, the Retirement Confidence Survey of the Employee Benefit Research Institute (EBRI) found that 19% of people age 25–69 believe they will get nothing from Social Security, presumably because of its inadequate financing. That figure is up from 10% in 1991 (EBRI, 2015).

Political ideology clearly plays a role in determining the way that countries reform their Social Security systems to respond to population aging. To restore Social Security's solvency, nearly all the Republican presidential candidates in 2016 favored Social Security benefit cuts (directly or through an increase in the Normal Retirement Age) with no increases in revenue, while the Democratic presidential candidates favored revenue increases, with no benefit cuts (Center for Retirement Research at Boston College, 2015).

A survey has found that more than half of American workers (58%) expect that Social Security reform will involve both financing increases and benefit cuts, while 18% think that reform will mostly or entirely involve benefit cuts, and nearly a quarter (24%) think that it will mostly or

entirely involve revenue increases (Luttmer & Samwick, 2016).

## The Equity of Social Security Reform

Social Security reform in the U.S. to deal with population aging is difficult to achieve. One reason may be the current methods used to analyze the equity, or fairness, of those reforms. Considerations of equity between different groups of workers play an important role in Social Security reform discussions. These comparisons can be between men and women, different racial or ethnic groups, different income groups, different occupations, or different generations or birth cohorts.

This section considers equity between low- and high-income workers in the context of raising the early or normal retirement ages as part of a reform to restore Social Security to financial solvency. This section argues that some equity standards used in Social Security reform discussions are impossible to satisfy, making Social Security reform difficult to achieve. Because Social Security program financing problems are due to population aging over time, this chapter argues that equity as to reform options should be analyzed by making comparisons over time.

## The Link Between Income and Mortality Rates

A study by Currie and Schwandt (2016) that examines U.S. mortality rates at the county level by the county poverty rate, found that the link between income and mortality is weakening, particularly for people younger than age 50. Thus, the gap between low-income and high-income people surviving to retirement age and receiving Social Security benefits has declined. Because mortality improvements at younger ages tend to persist at older ages, they argue that in the future mortality inequality by income will be less than it is currently. Also, it is clear that the mortality gap



between Blacks and Whites has declined (The Economist, 2016).

This section considers different measures of equity concerning Social Security policy changes, comparing between low-income and high-income workers. It defines equity over time as an equal percentage change in income for the two groups. In considering equity for different income groups, it considers three measures of annual income: Social Security benefits, Social Security benefits plus Disability Insurance benefits plus Supplemental Security Income benefits, and retirement income. For each of the annual measures, a related present value of lifetime benefits can be used as the income measure.

In addition, different base lines can be considered. Two possible base lines are: (1) the current structure of Social Security benefits and financing, versus (2) the future situation of insolvency if no changes are made in Social Security. While the current situation is often chosen as the base line, that choice is flawed because it is not a feasible option. Though equity comparisons are rarely made against the situation of future insolvency, that would be a more relevant comparison.

Also, two different time periods can be considered. The comparison can be cross-sectional or it can be inter-generational. All of these combinations make a total of 24 equity comparisons for any policy change. Then, for each of these comparisons, the comparison could be made assuming no behavioral response, or it could be made taking into account a possible behavioral response, raising the total number of comparisons to 48. With this number of possible equity standards, it should not be surprising that generally any possible policy option fails to meet all of them. Thus, the large number of possible equity comparisons yielding different results may be one reason for the difficulty in making Social Security reform.

## Social Security Reforms

This section applies equity analysis to two possible reforms to deal with the effect on Social Security's finances in the U.S. of longer

longevity: (1) raising the early retirement age, which is 62, and (2) raising the normal retirement age, which currently is already being increased to 67, based on the 1983 Amendments to Social Security.

***Raising the Early Retirement Age*** One policy option for improving Social Security financing in a situation of increasing life expectancy is to raise the early retirement age, which is 62 in the U.S., so that benefits currently receivable at age 62 would be received at age 63. If the early retirement age were raised to 63 with no change in the benefit formula, there would be no effect on the benefits of people already retiring at age 63 or older. People currently retiring before age 63 would have their annual benefits increased in a way that for most people is roughly actuarially fair.

According to one argument using cross-sectional equity analysis, this policy would be unfair to low-income workers because they have shorter life expectancy than high-income workers. Thus, raising the early retirement age is a larger percent reduction in years in retirement and in expected present value of Social Security benefits for low-income workers than for high-income workers. By this equity argument, it would be impossible to ever raise the early retirement age no matter how large the increase in life expectancy so long as low-income persons have lower life expectancy than high-income persons, which is a situation that is likely to persist.

An alternative equity comparison to the cross-sectional comparison is to make an inter-generational cross-sectional comparison. With this comparison, the situation of a low-income person would be compared to that of a low-income person a generation earlier. With this comparison, the early retirement age (ERA) could be raised if life expectancy for low-income people had increased over a generation, which it has.

When U.S. Social Security first provided benefits in 1940, the earliest age at which benefits could be received was 65. Comparisons of inter-

generational equity against that base would suggest that an early retirement age of ages 63, 64, or 65 would not be inequitable.

**Raising the Normal Retirement Age (NRA)** The normal retirement age is a parameter of the Social Security benefit formula. Raising the normal retirement age has the effect of cutting benefits. For example, if the normal retirement age (NRA) were raised by three years, from age 67 to 70, someone claiming benefits at age 67 would face a 20% cut in annual benefits.

A U.S. National Academy of Science (2015) study has found that raising the NRA would adversely affect low-income persons relative to high-income persons. However, the Committee for a Responsible Federal Budget (2016) argues that this analysis is incorrect, and that raising the NRA would result in an equal percentage annual benefit cut for everyone and thus would not be unfair to low-income persons. Indeed, the U.S. National Academy of Science (2015) report finds that raising the normal retirement age would affect low-income and high-income persons roughly the same if there were no behavioral responses to the change.

An across-the-board cut in benefits would be fair to workers in a cross-sectional framework because it would be an equal percentage cut for all workers. It would also be fair in a cross-sectional lifetime framework because it would be an equal percentage cut in lifetime benefits for all workers. However, because Social Security benefits are a larger percentage of retirement income for low-income persons than high-income persons, an across-the-board cut would not be viewed as being equitable when considering retirement income instead of Social Security benefits.

The U.S. National Academy of Sciences (2015) argues that raising the normal retirement age (NRA), which involves across-the-board cuts of Social Security benefits, would be unfair to lower-income workers because of behavioral responses to such a policy. To the extent that workers attempted to offset the cut in their Social Security benefits by working longer, low-income workers would be more adversely affected than

high-income workers because that change would result in a larger reduction in years spent receiving Social Security benefits for the lower-income workers, due to their lower life expectancy.

Thus, this section argues that an issue that makes Social Security reform to restore solvency more difficult is that some of the equity comparisons that are used to attack reform options are impossible to satisfy. For example, comparisons to the current unsustainable system can result in an equity standard that is impossible to meet. Similarly, cross-sectional equity comparisons can make it impossible to raise the early retirement age as a response to the increase in life expectancy over time.

This section argues that base lines for equity comparisons relating to Social Security reform should be feasible options, rather than the infeasible status quo. It also argues for inter-temporal equity comparisons. In addition, it argues for the recognition that it may not be possible to satisfy all equity measures that can be applied to a given reform option. In short, it argues for recognition of equity impossibility in some aspects of the U.S. Social Security reform debate.

### **Reducing Political Risk through Automatic Adjustment Mechanisms**

Historically, countries have made *ad hoc* adjustments to maintain the solvency of Social Security programs in response to population aging, which required legislative intervention by politicians each time an adjustment to Social Security financing was needed. Because of the political difficulty for politicians in enacting in a timely manner unpopular reforms involving benefit cuts, since the late 1990s some countries have adopted automatic adjustment mechanisms. These types of reforms help to sustain the solvency of Social Security systems while reducing the political risk to participants and politicians associated with the adjustments. They reduce political risk to participants that would otherwise occur because of the delayed timing of reforms and the effects of reforms with short phase-in periods on workers and retirees.

At least twelve countries have adopted automatic adjustment mechanisms as a way to maintain the solvency of their pay-as-you-go Social Security programs and reduce the political risk associated with Social Security reform (Turner, 2009). These countries include Sweden, Germany, and Canada. Key features of these mechanisms include frequency of review of future solvency, measurement mechanics/criteria, and effects on either retirees (benefits), workers (contribution rates), or both.

***Life Expectancy Indexing of Benefits*** A number of countries have reformed their Social Security systems to incorporate life expectancy indexing of Social Security benefits (Turner & Rajnes, 2016). With life expectancy indexing, Social Security benefits are reduced in line with life expectancy increases so as to maintain the expected present value of lifetime benefits.

In Sweden, life expectancy indexing of benefits is done by use of an annuity divisor that reflects improvements in life expectancy at age 65. For each birth cohort, the annuity divisor adjustment is established at age 65, with a provisional adjustment made for retirements starting at age 61, which is the benefit entitlement age. No further reductions in benefits for improvements in life expectancy occur after the retiree reaches age 65.

***Automatic Adjustments Linked to Solvency*** In addition to the automatic adjustment of benefits at retirement for longevity improvement, every year, the Swedish government tests whether the system is in financial balance. If the system falls out of balance, adjustments are automatically made to decrease benefit accruals. Thus, automatic adjustment mechanisms reduce the political risk that no action will be taken until a crisis. Instead, actions take place automatically.

Germany has changed the calculation of benefits to incorporate life expectancy as one aspect of a more complex adjustment mechanism, called the sustainability factor. The sustainability factor attempts to achieve sustainability by limiting the growth rate of average benefits. The

sustainability factor incorporates not only life expectancy changes but all demographic factors that affect the system dependency ratio—the ratio of beneficiaries to covered workers.

In Canada, the Social Security system is designed so that there should be no need for further contribution rate increases or benefit cuts. However, an automatic adjustment may still be needed if one or more of three events occurs: (1) financial markets are weak for a prolonged period, (2) life expectancy increases considerably more rapidly than anticipated, or (3) another economic or demographic variable affecting funding turns out to be more adverse to funding than expected.

Every three years, the system's chief actuary evaluates the Canada Pension Plan's financial sustainability. If the Chief Actuary determines that the CPP system is not financially sustainable in the long run, legislation requires an automatic adjustment (Office of the Superintendent of Financial Institutions Canada, 2007). However, the automatic adjustment occurs only if the Canadian provincial finance ministers cannot first decide on an adjustment—an outcome that is considered unlikely.

The automatic adjustment eliminates cost-of-living increases for three years. In addition, it increases the contribution rate over that period by an amount equal to half of the adjustment needed to reach the new long-term contribution rate required to restore solvency. Thus, the changes are borne both through an increase in contributions and through a reduction in benefits (Brown, 2008). If changes in long-run assumptions raise the projected steady-state contribution rate required to maintain a constant ratio of assets to expenditures, the contribution rate will be increased permanently.

The Canadian Social Security system has been designed so that there is little need for the adjustment mechanism. By moving toward partial funding, the system is designed to maintain both a constant payroll tax rate across age cohorts and a constant replacement rate—a long-run stability that few Social Security systems have achieved.

***Political Risk*** One issue with these mechanisms is how automatic they actually are in practice. The

governments in Sweden and Germany have changed the adjustment mechanism when unpopular adjustments were required. In 2009, Germany passed a law that for the second consecutive year overrode the automatic adjustment mechanism. However, since 2010, the suspended cuts of 2009 have been offset against pension increases that were to become effective in the years that followed. In Sweden, the 2008 financial crisis and recession caused a decline in the value of the Social Security buffer funds, which was expected to lead to a reduction in benefits in 2010. A cut in benefits was avoided by changing the activation of the automatic balancing trigger on buffer fund balances (formerly a single year) to a three-year average (Bosworth & Weaver, 2011). As a consequence, future benefit cuts resulting from swings in fund balances would be moderated.

Another aspect of political risk is that a system that is financially sustainable may be viewed as not providing adequate benefits. Some people in Canada have argued for increasing Canada Pension Plan (CPP) benefits (Marchessault, 2014), which subsequently was enacted. In Sweden, the automatic adjustment mechanism results in falling replacement rates over time, which raises the concern that the benefits will eventually be viewed as insufficient.

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## Conclusions

This chapter has analyzed the effects of population aging on Social Security old-age benefits programs, focusing on high-income countries, but also touching on issues in less developed countries. It has discussed various reforms that have been enacted to deal with the extra cost imposed by population aging, measured by the old-age dependency ratio. Contribution rates can be raised, the maximum amount of taxable earnings can be increased, or the retirement age can be raised. The provision of Social Security benefits

can be privatized by partially or fully replacing traditional pay-as-you-go Social Security programs with funded individual account plans, or with notional defined contribution plans. The chapter also discussed the process of reform and the politics of reform, including the issue of political risk. It discussed automatic adjustment mechanisms as one way of dealing with political risk.

This chapter, in an appendix, has analyzed Social Security reform using a simplified form of a pay-as-you-go Social Security program. It has indicated that increasing Social Security benefit generosity, even with population aging, would be feasible, if the wage elasticity of demand is sufficiently high and the price elasticity is sufficiently low. In practice, the elasticity parameter values required appear to be unlikely. The chapter went on to consider the characteristics of a sustainable Social Security benefit formula, and why the current formula in the U.S. is not sustainable. While it considered several financing options, others could be adopted. For example, other sources of financing besides the payroll tax rate could be used. Some countries rely to some extent on general revenue financing.

The chapter developed a benefit formula for pay-as-you-go Social Security programs that will assure solvency over the long run. The proposed benefit formula automatically adjusts to economic and demographic changes in a way that is stable and sustainable. The chapter demonstrated that for a country that has reached its maximum acceptable Social Security payroll tax rate, a Social Security system with a benefit formula that sets the growth in average real benefits over time equal to the growth in the real wage minus the growth in the old-age dependency ratio will be sustainable with respect to demographic and economic fluctuations. Social Security programs, such as that in the U.S., which set the rate of growth of real benefits per beneficiary equal to the rate of growth of real wages, which maintains a constant replacement rate over time, are not sustainable over the long run.

## Appendix: Shadow Prices and Constraints

This section presents a formal model for analyzing these issues relating to population aging and Social Security policy. With pay-as-you-go financing, Social Security faces the budget constraint that the annual inflow of revenue must equal the outflow of benefits

$$BN = twL \quad (26.1)$$

where  $B$  is the average annual benefit,  $N$  is the number of Social Security beneficiaries,  $BN$  is total annual benefit payments,  $t$  is the payroll tax rate,  $w$  is average annual wage income,  $L$  is the total number of Social Security covered workers and  $twL$  is total annual Social Security contributions. This constraint is a hard or fixed constraint that is determined by the financing requirements of a pay-as-you-go system.

In addition to this constraint, two soft constraints are defined by the differing views of the population as to the acceptable role of government in providing retirement benefits. The first soft constraint is that there is a maximum acceptable level for the Social Security payroll tax rate  $t_{\max}$ , so that the actual payroll tax rate must be less than or equal to  $t_{\max}$ .

$$t \leq t_{\max} \quad (26.2)$$

People differ as to what that rate is, and its level thus depends on the political strength of the different viewpoints, and varies across countries. Sweden, for example, has adopted the policy that all future adjustments to its Social Security system will be made through changes in benefit levels, with the Social Security payroll tax rate having reached its maximum acceptable level (Turner, 2004).

In addition, a politically determined minimum acceptable level for the generosity of Social Security benefits also acts as a soft constraint. The generosity of Social Security benefits is typically measured by the Social Security replacement rate, which is the ratio of Social Security benefits to wages  $\frac{B}{w}$ . Thus, there is a minimum acceptable replacement rate  $(\frac{B}{w})_{\min}$ , with the actual replacement rate being greater or equal to that rate.

$$\frac{B}{w} \geq \left(\frac{B}{w}\right)_{\min} \quad (26.3)$$

In Sweden, because all adjustments to Social Security are made by cutting the generosity of benefits, the replacement rate has declined over time. At some point, it can be predicted that the replacement rate will fall to a level that the political consensus is that further cuts are not politically acceptable.

The old-age dependency ratio for Social Security is the ratio of beneficiaries to covered workers  $\frac{N}{L}$ . It is widely recognized that an increasing old-age dependency ratio, which is caused by population aging, increases the difficulty of financing Social Security benefits.

Equation (26.1) can be rewritten in terms of the level of the average individual's tax payments.

$$tw = B \frac{N}{L} \quad (26.4)$$

The shadow price to the individual for a marginal increase in Social Security benefits is the marginal increase in the worker's tax payments  $tw$  with respect to a marginal increase in benefits  $B$  for current retirees. Using that insight, Turner (1984) showed that the old-age dependency ratio acts as a shadow price  $p$  for Social Security benefits in the context of a pay-as-you-go system.

$$p = \frac{N}{L} \quad (26.5)$$

To demonstrate the intuition of this concept, when the ratio of beneficiaries to workers is one to ten, it costs each worker USD 0.1 to raise the average benefit level by USD 1. By comparison, when the ratio is one to two, it costs each worker USD 0.5 to raise the average benefit level by USD 1. A similar shadow price can be calculated for Federal spending on the young, but total spending on the young is roughly 20% as large as spending on those age 65 and older (Burtless, 2015), and is not considered here.

These constraints and the shadow price can be used to form the basis of an analysis of the level of Social Security benefits as it is affected by population aging. The demand for the level of Social Security benefits can be written as a

function of workers' earnings  $w$ , the shadow price  $p$  of Social Security benefits, and the real interest rate.

$$p = \frac{N}{L} \quad (26.6)$$

Increases in the wage rate increase the demand for Social Security benefits, while increases in the shadow price of Social Security benefits reduce the demand for benefits. Increases in the real interest rate reduce the demand for Social Security benefits because they increase the demand for financial assets. The demand function can be written in a percentage change form as

$$E(B^D) = a_1 E(w) + a_2 E(p) \quad (26.7)$$

where  $E$  is the percentage change operator (the derivative of the natural logarithm),  $a_1$  is the income elasticity of demand for the level of Social Security benefits, which is positive,  $a_2$  is the price elasticity, which is negative, and it is assumed for simplicity in this analysis that the real interest rate is constant, and thus drops out of the percentage change equation. Other parameters could be added to the demand function, such as a demand for income redistribution, but factors that do not change over time would drop out from the dynamic demand function. The pay-as-you-go constraint can also be written in percentage change terms as

$$E(BN) = E(twL) \quad (26.8)$$

Equation 26.8 is a dynamic budget constraint. It indicates that for Social Security to maintain financial balance over time, the growth rate in total real benefit payments must equal the growth rate in total real payroll tax payments.

Splitting the dynamic budget constraint into its component parts, Eq. 26.8 becomes

$$E(B) + E(N) = E(t) + E(w) + E(L) \quad (26.9)$$

The growth rate in total Social Security contributions (the right-hand side of Eq. 26.9) equals the sum of the growth rates of the payroll tax rate, average real wages, and the labor force. The growth rate in total benefits (the left-hand side of Eq. 26.9) equals the sum of the growth rate of benefits per beneficiary and the growth rate

of beneficiaries. Expressing the equation in terms of the percentage change in average benefits gives

$$E(B) = E(t) + E(w) + E(L) - E(N) \quad (26.10)$$

Because the policy interest concerning benefit levels relates to the replacement rate  $\frac{B}{w}$ , Eq. 26.10 can be rewritten as

$$E\left(\frac{B}{w}\right) = E(t) - E\left(\frac{N}{L}\right) \quad (26.11)$$

To maintain a constant replacement rate ( $E\left(\frac{B}{w}\right) = 0$ ), the payroll tax rate must grow at the same rate as the increase in the old-age dependency ratio. If the tax rate has reached its maximum acceptable level so that no further increases are possible ( $E(t) = 0$ ), the change in the replacement rate is not determined by the income and price elasticities of the demand for Social Security benefits but by the requirements of the pay-as-you-go budget constraint.

$$E\left(\frac{B}{w}\right) = -E\left(\frac{N}{L}\right) \quad (26.12)$$

Equation 26.12 indicates that in that situation, the percentage change in the Social Security replacement rate equals the negative of the percentage change in the old-age dependency ratio. Since with population aging, the rate of growth of the old-age dependency ratio is positive, the policy outcome must be that the replacement rate will decline at the same rate that the old-age dependency ratio is increasing.

Assuming that the payroll tax rate has not reached its maximum acceptable level, the effect of policy changes on the benefit replacement rate can be analyzed in terms of the levels of the wage and price elasticities. The benefit demand Eq. 26.7 can be rewritten in terms of replacement rates by subtracting the percentage change in wages  $E(w)$  from both sides of the equation

$$E\left(\frac{B}{w}\right) = (a_1 - 1)E(w) + a_2 E(p) \quad (26.13)$$

where the superscript  $D$  indicating demand has been suppressed for notational simplicity. If the wage income price elasticity  $a_1$  equals one, the outcome of policy reform on the Social Security replacement rate will depend entirely on the price

elasticity  $a_2$ . With a negative price elasticity, because of the increase in the shadow price (increasing old-age dependency ratio), the policy reform will result in a decreasing Social Security replacement rate. Thus, under conditions of population aging, a necessary condition for policy reform to result in an increase in the Social Security replacement rate is for the income elasticity of demand for Social Security benefits to be greater than one. For example, depending on the percentage changes in income and in the old-age dependency ratio, the policy reform outcome could be an increase in the generosity of Social Security benefits, as measured by the replacement rate, if the income elasticity were sufficiently high and the price elasticity sufficiently low (in absolute value).

According to the intermediate estimates of the U.S. Social Security actuaries, real covered wages will grow by 1.17% per year between 2015 and 2035. Over that period, the number of OASDI beneficiaries per 100 covered workers will rise from 36 to 44, or by about 1% a year (U.S. Social Security Board of Trustees, 2015). With these growth rates, if, for example, the income elasticity was 1.2 and the price elasticity was less than 0.2 in absolute value, policy reform would result in an increase in the benefit replacement rate. The greater the degree that people consider that there are no good substitutes for Social Security benefits and that Social Security benefits are a necessity, the lower would be the price elasticity in absolute value. Because the employer half of the payroll tax payment is not salient to workers, that may lower the price elasticity. However, the more that people consider private savings and pensions to be a substitute for Social Security, the higher would be the price elasticity.

In sum, this model analyzes reform due to population aging affecting the generosity of Social Security benefits in a price theoretic framework, with the outcome of reform depending on the income and price elasticities, along with the associated changes in income and the shadow price. With population aging, reform will result in an increase in the generosity of Social Security

benefits only if the price elasticity is sufficiently small in absolute value and the income elasticity exceeds one.

## Requirements for Financial Sustainability in Social Security Financing

This section addresses the issue of the financial sustainability of Social Security. Are the benefit formula and the financing mechanism together sustainable over the long-term?

The mathematics of pay-as-you-go systems clarifies the role of indexing implicit in Social Security benefit formulas with respect to both economic and demographic changes, such as population aging. It indicates what type of benefit formula or automatic adjustment mechanism is needed to maintain sustainability of Social Security financing.

We begin the analysis of this section by returning to the dynamic budget constraint as expressed in Eq. 26.10.

$$E(B) = E(t) + E(w) + E(L) - E(N) \quad (26.10)$$

For countries where the payroll tax rate  $t$  is fixed ( $E(t) = 0$ ), having reached the maximum level considered politically acceptable, the dynamic constraint for a sustainable benefit formula can be seen in Eq. 26.14.

$$E(B) = E(w) - E\left(\frac{N}{L}\right) \quad (26.14)$$

Equation 26.14 can be interpreted as a dynamic benefit formula that is consistent with sustainable pay-as-you-go financing when the payroll tax rate is fixed. It indicates that a sustainable Social Security program with pay-as-you-go financing would have benefits growing at less than the real wage earnings growth rate. They would grow at the rate of real wage earnings growth less an adjustment for the rate of growth in the old-age dependency ratio. Adjustment mechanisms or benefit formulas that are not consistent with Eq. 26.14 will not be sustainable over the long

run. Because the U.S. Social Security benefit formula has benefits growing at the rate of the real wage growth rate over the long term, Eq. 26.14 indicates that the U.S. Social Security benefit formula is not sustainable with population aging and a fixed payroll tax rate. Of course, it is possible that the payroll tax rate will be increased in the future.

In sum, the Social Security budget constraint limits countries' Social Security options. If countries have decided that they will not raise the Social Security payroll tax rate, their choices are further limited. Because of falling birth rates and increasing life expectancy at older ages, the number of beneficiaries is growing faster than the number of workers. In this situation, the Social Security budget constraint indicates that countries must reduce the generosity of Social Security benefits relative to wages. With a fixed early retirement age, this means that the replacement rate must fall. With population aging, benefit formulas and automatic adjustment mechanisms that are not consistent with this constraint will ultimately fail to be sustainable. Increasing the early retirement age is a policy option for dealing with the effects of population aging on Social Security systems that was discussed in this chapter.

The assumption of a fixed payroll tax rate appears to apply for some countries, where it appears that the payroll tax rate has reached its maximum acceptable level, and can be predicted to eventually apply for most countries after future increases have caused the rate to reach the highest level that is politically feasible. Even in those situations, however, there may be people who disagree with the political consensus and favor instead maintaining the replacement rate ( $E(B/w) = 0$ ) so as to preserve the level of generosity of the Social Security program. In that case, Eq. 26.10, with rearrangement of terms, becomes

$$E(t) = E(N/L). \quad (26.15)$$

Thus, if the replacement rate is fixed so as to maintain the generosity of the Social Security

program, the payroll tax rate must increase at the same rate as the old-age dependency ratio.

This analysis thus far has taken the old-age dependency rate as being determined by demographics, given a fixed Social Security benefit claiming age (retirement age). However, an alternative approach is to raise the eligibility age for Social Security benefits. From Eq. 26.11, if both the replacement rate and the payroll tax rate are considered fixed, Social Security solvency can still be maintained by raising the eligibility age over time so as to keep the old-age dependency rate constant

$$E(N/L) = 0. \quad (26.16)$$

Equation 26.16 assumes that raising the eligibility age is done in such a way that benefits received at the new age are the same as those received at the previous age. It should be noted that this is a partial equilibrium analysis, and does not take into account effects of raising the retirement age on the capital-labor ratio, and thus on real wages and the fertility rate.

### Application to the U.S. Social Security System

The basic U.S. Social Security benefit formula maintains a constant replacement ratio over time and thus can be represented in dynamic (percent-age change) terms as the following:

$$E(B/w) = 0 \quad (26.17)$$

This benefit formula is sustainable without increases in the payroll tax rate, so long as the old-age dependency ratio is stable or declining. Thus, the Social Security benefit formula was stable for years while the Baby Boom generation was swelling the ranks of the workforce and the old-age dependency ratio was declining.

The current Social Security benefit formula is no longer sustainable with a fixed payroll tax rate because the old-age dependency ratio is increasing, which implies a replacement rate that



declines over time at the same rate as the increase in the old-age dependency ratio, as shown in Eq. 26.12.

Calculations using the intermediate assumptions for the 2015 Trustees Report indicate that between 2015 and 2035 the old-age dependency ratio is projected to increase at roughly 1% per year (U.S. Social Security Board of Trustees, 2015, 2019). Using Eq. 26.12, this implies that the replacement rate for financial sustainability must decrease at 1% per year. This conflict between the actual Social Security benefit formula and a sustainable formula is one way of viewing the inherent problem in financing under the current U.S. Social Security benefit formula with the constraint of a fixed payroll tax rate.

Thus, the financial unsustainability of the U.S. Social Security program can be viewed as being due to a flaw in its benefit formula that does not adjust to an increasing old-age dependency ratio. The current demographics of an increasing old-age dependency ratio plus the political economics of a seemingly fixed payroll tax rate dictate that the U.S. Social Security replacement rate must fall. It is not possible to maintain the current generosity of Social Security with an increasing old-age dependency ratio and a fixed payroll tax rate.

## An Alternative Model

Voting models provide an alternative approach to analyzing the issue of what will happen to the future level of U.S. Social Security benefits. A simple model would indicate that the greater the number of beneficiaries and people near retirement age relative to younger workers, the greater the likelihood that benefits will be increased because that is in their own narrow self-interest. An implication of this model is that the large Baby Boom generation would force high Social Security payroll tax rates on their children to finance increased Social Security benefits for themselves. However, given the interconnectedness of different generations through families, it seems implausible that the Baby

Boomers would want to do this. Also, given a median voter model, it seems implausible that they would have sufficient voting power to achieve that outcome if they desired it.

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## References

- Aaron, H. J. (1966). The social insurance paradox. *Canadian Journal of Economics and Political Science*, 32(3), 371–374.
- Abeler, J., & Jäger, S. (2015). Complex tax incentives. *American Economic Journal: Economic Policy*, 7(3), 1–28. <https://doi.org/10.1257/pol.20130137>
- Ambrosetti, E. (this volume). “Europe: Low Fertility, Aging, and Migration Policies.” Chapter 14. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Boccia, R., & Greszler, R. (2013). *Social security benefits and the impact of the chained CPI*. The Heritage Foundation. <https://www.heritage.org/social-security/report/social-security-benefits-and-the-impact-the-chained-cpi>
- Börsch-Supan, A., Reil-Held, A., & Wilke, C. B. (2003). *How to make a defined benefit system sustainable: The “sustainability factor” in the German benefit formula*. MEA Discussion Paper 37-2003. Munich, DE: Max Planck Institute for Social Law and Social Policy, Munich Center for the Economics of Aging (MEA). <http://ub-madoc.bib.uni-mannheim.de/288/1/mea08.pdf>
- Bosworth, B., & Weaver, R. K. (2011). *Social security on auto-pilot: International experience with automatic stabilizer mechanisms*. CRR Working Paper No. 2011-18. Chestnut Hill, MA: Center for Retirement Research at Boston College. [http://crr.bc.edu/wp-content/uploads/2011/11/wp\\_2011-18-508.pdf](http://crr.bc.edu/wp-content/uploads/2011/11/wp_2011-18-508.pdf)
- Brady, D. W., & Volden, C. (2006). *Revolving Gridlock: Politics and policy from Jimmy Carter to George W. Bush*. Westview Press.
- Brown, R. L. (2008). Reforms to Canadian social security, 1996/97. In S. J. Kay & T. Sinha (Eds.), *Lessons from pension reform in the Americas* (pp. 242–256). Oxford University Press.
- Burtless, G. (2015). “Generational war over the budget? Hard to see it in the numbers.” *Opinion*. Brookings Institution. [http://www.brookings.edu/research/opinions/2015/12/02-generational-spending-us-bud-get-burtless?hs\\_u=jaturner49@aol.com&utm\\_campaign=Economic+Studies&utm\\_source=hs\\_email&utm\\_medium=email&utm\\_content=24397477&\\_hsenc=p2ANqtz-8VaFXdUXSYHQKYsfLiMHKQTsmi-Yj61hJeeNQGXL3ZGW2b2ZyrfhxSdCY\\_s4cet8mWkDFCbU\\_aHu3TctD2qwNVM2uHgg&\\_hsmi=24397477](http://www.brookings.edu/research/opinions/2015/12/02-generational-spending-us-bud-get-burtless?hs_u=jaturner49@aol.com&utm_campaign=Economic+Studies&utm_source=hs_email&utm_medium=email&utm_content=24397477&_hsenc=p2ANqtz-8VaFXdUXSYHQKYsfLiMHKQTsmi-Yj61hJeeNQGXL3ZGW2b2ZyrfhxSdCY_s4cet8mWkDFCbU_aHu3TctD2qwNVM2uHgg&_hsmi=24397477)
- Canadian Press. (2016). Trudeau says budget will commit to returning eligibility for old age security to 65. *Edmonton Journal*. March 17, <http://>

- edmontonjournal.com/storyline/trudeau-says-budget-will-commit-to-returning-eligibility-for-old-age-security-to-65
- Center for Retirement Research at Boston College. (2015). *The 2016 presidential candidates' on social security*. Center for Retirement Research at Boston College. <http://crr.bc.edu/newsroom/featured-work/2016-presidential-candidates-views-on-social-security/>
- Chen, T., & Turner, J. A. (2020). China's development of a multi-tier pension system. In *Pension Policy Center Working Paper 2020-7*. Pension Policy Center.
- Choi, J. J., Laibson, D., Madrian, B., & Metrick, A. (2002). Defined contribution pensions: Plan rules, participant choices, and the path of least resistance. In J. M. Poterba (Ed.), *Tax Policy and the Economy* (Vol. 16, pp. 67-114). MIT Press. <http://www.nber.org/chapters/c10863.pdf>
- Cipriani, G. P., & Pascucci, F. (2020). Pension policies in a model with endogenous fertility. *Journal of Pension Economics and Finance*, 19(1), 109-125.
- Clancy, D. (2015). The best way to reform social security: Eliminating the payroll tax is the key. Yes, really. *U.S. News & World Report*, April 27. <http://www.usnews.com/opinion/blogs/opinion-blog/2015/04/27/the-best-way-to-reform-social-security-eliminate-the-payroll-tax>
- Committee for a Responsible Federal Budget. (2013). Social security reform and the cost of delay. August 22. [http://crfb.org/sites/default/files/social\\_security\\_cost\\_of\\_waiting\\_8\\_22\\_13.pdf](http://crfb.org/sites/default/files/social_security_cost_of_waiting_8_22_13.pdf)
- Committee for a Responsible Federal Budget. (2015). The better budget process initiative: Strengthening statutory budget enforcement. June 25. [http://crfb.org/sites/default/files/bbpi\\_strengtheningstatutorybudgetenforcement.pdf](http://crfb.org/sites/default/files/bbpi_strengtheningstatutorybudgetenforcement.pdf)
- Committee for a Responsible Federal Budget. 2016. Nine social security myths you shouldn't believe. April 27. <http://crfb.org/document/nine-social-security-myths-you-shouldnt-believe>
- CPP Investment Board. (2015a). *2015 annual report*. Canada Pension Plan Investment Board. <http://viewer.zmags.com/publication/53289bac/#/53289bac/2>
- CPP Investment Board. (2015b). *CPPIB at a glance: Who we are*. Canada Pension Plan Investment Board. <http://www.cppib.com/en/who-we-are.html>
- Currie, J., & Schwandt, H. (2016). *Mortality inequality: The good news from a county level approach*. NBER Working Paper No. 22199. Cambridge, MA: National Bureau of Economic Research. <http://www.nber.org/papers/w22199.pdf>
- Diamond, P. (1994). *Insulation of pensions from political risk*. NBER Working Paper No. 4895. National Bureau of Economic Research (NBER).
- EBRI. (2015). *Attitudes about current social security and Medicare benefit levels*. Retirement Confidence Survey (RCS). Fact Sheet No. 6. Employee Benefit Research Institute. <http://www.ebri.org/files/RCS15.FS.6.Entitlmts2.pdf>
- Fornero, E. & Lo Prete, A. (2017). Voting in the aftermath of a pension reform: The role of economic literacy. University of Torino. [http://housefinance.dauphine.fr/fileadmin/mediatheque/houseoffinance/documents/international\\_pension\\_workshop/15th\\_workshop/Loprete.pdf](http://housefinance.dauphine.fr/fileadmin/mediatheque/houseoffinance/documents/international_pension_workshop/15th_workshop/Loprete.pdf)
- Gillion, C., Turner, J. A., Latulippe, D., & Bailey, C. (Eds.). (2000). *Social security pensions: Development and reform*. International Labour Office.
- Grandolini, G.M. (2016). *Can developing countries increase pension coverage to prepare for old age?* World Bank Blogs, September 12. World Bank Group. <https://blogs.worldbank.org/voices/can-developing-countries-increase-pension-coverage-prepare-old-age>
- Greenspan Commission. (1983). *Greenspan Commission. Report of the National Commission on Social Security Reform*. January 1983. U.S. Congress. <https://www.ssa.gov/history/reports/gspan5.html>
- ILO. (2000). *Ninety per cent of world excluded from old age pension schemes*. International Labour Organization. [https://www.ilo.org/asia/media-centre/news/WCMS\\_BK\\_PR\\_19\\_EN/lang%2D%2Den/index.htm](https://www.ilo.org/asia/media-centre/news/WCMS_BK_PR_19_EN/lang%2D%2Den/index.htm)
- ILO. (2011). *Social security and ageing populations in developing countries*. International Labour Organization. [https://www.ilo.org/global/publications/world-of-work-magazine/articles/WCMS\\_155304/lang%2D%2Den/index.htm](https://www.ilo.org/global/publications/world-of-work-magazine/articles/WCMS_155304/lang%2D%2Den/index.htm)
- ILO.f. (2019). *World Social Protection Report 2017-2019*. International Labour Organization. <https://www.social-protection.org/gimi/RessourcePDF.action?id=54888#:~:text=ILO%20estimates%20also%20show%20that,benefits%20to%20old%2Dage%20pensions>
- Inman, P. (2010). Inflation Index Move Is 'Insidious' Benefit Cut, Says TUC. *The Guardian*, October 12. <http://www.guardian.co.uk/business/2010/oct/12/price-index-change-hits-pensions-benefits>
- Kwena, R. M., & Turner, J. A. (2013). Extending pension and savings scheme coverage to the informal sector: Kenya's Mbao pension plan. *International Social Security Review*, 66(2), 79-99. <http://onlinelibrary.wiley.com/doi/10.1111/issr.12010/abstract;jsessionid=BED174745525F77BC184B67C8C107F0F.d02t01>
- Latulippe, D., & Turner, J. A. (2020). Social security retirement policy in Canada and the United States: Different reforms, different outcomes. *Canadian Public Policy*, 45(4), e019029. <https://doi.org/10.3138/cpp.2019-029>
- Leime, A. N. (2019). *Extended Working Life Policies: Gender and health implications in Ireland*. Whitaker Institute Policy Brief Series, Policy Brief No. 49. Whitaker Institute for Innovation and Societal Change. [http://whitakerinstitute.ie/wp-content/uploads/2019/03/Whitaker\\_Policy-Brief\\_no.-49\\_AineNiLeime.pdf?utm\\_medium=email&utm\\_campaign=New%20Policy%20Brief%20published%20-%20Policy%20Brief%20no%2049&utm\\_content=New%20Policy%20Brief%20published%20-%20Policy%20Brief%20no%2049+CID\\_b6b9b0671412bf619474befd91c2b5d4&utm\\_source=Email%20marketing%20software&utm\\_term=Read%20more](http://whitakerinstitute.ie/wp-content/uploads/2019/03/Whitaker_Policy-Brief_no.-49_AineNiLeime.pdf?utm_medium=email&utm_campaign=New%20Policy%20Brief%20published%20-%20Policy%20Brief%20no%2049&utm_content=New%20Policy%20Brief%20published%20-%20Policy%20Brief%20no%2049+CID_b6b9b0671412bf619474befd91c2b5d4&utm_source=Email%20marketing%20software&utm_term=Read%20more)

- Lusardi, A. & Mitchell, O. S. (2005). *Financial literacy and planning: Implications for retirement wellbeing*. Research Paper WP 2005-108. Michigan Retirement Research Center. <http://deepblue.lib.umich.edu/bitstream/handle/2027.42/49432/wp108.pdf?sequence=1>
- Luttmer, E. F. P. & Samwick, A. A. (2016). *The welfare cost of perceived policy uncertainty: evidence from social security*. Research Briefs in Economic Policy No. 49. Cato Institute. <https://www.cato.org/publications/research-briefs-economic-policy/welfare-cost-perceived-policy-uncertainty-evidence-social>
- Madrian, B. C., & Shea, D. F. (2001). The power of suggestion: Inertia in 401(k) participation and savings behavior. *Quarterly Journal of Economics*, 116(4), 1149–1187.
- Marchessault, C. (2014). Should B.C. Have its own pension plan? *Benefits Canada*, July 24. <http://www.benefitscanada.com/pensions/governance-law/should-b-c-have-its-own-pension-plan-55164>
- Mastrobuoni, G. (2009). Labor supply effects of the recent Social Security benefit cuts: Empirical estimates using cohort discontinuities. *Journal of Public Economics*, 93(1–12), 1224–1233. <https://doi.org/10.1016/j.jpubeco.2009.07.009>
- Munnell, A. H. (1989). Should we fund social security? *Journal of Aging & Social Policy*, 1(1–2), 155–180.
- OECD. (2019). *Working better with age*. Organisation for Economic Co-operation and Development. <http://www.oecd.org/els/working-better-with-age-c4d4f66a-en.htm>
- Office of the Superintendent of Financial Institutions Canada. (2007). *Optimal funding of the Canada pension plan*. Actuarial Study No. 6. Office of the Superintendent of Financial Institutions Canada, Office of the Chief Actuary. [http://www.osfi-bsif.gc.ca/eng/docs/optimal\\_funding\\_cpp.pdf](http://www.osfi-bsif.gc.ca/eng/docs/optimal_funding_cpp.pdf)
- Pew Research Center. (2014). *Political polarization in the American public*. Pew Research Center. <http://www.people-press.org/2014/06/12/section-1-growing-ideo-logical-consistency/>
- Proccounting. (2013). *Canada Pension Plan (CPP) contribution rates*. Proccounting. <http://www.proccounting.com/resources/business-management/138-canada-pension-plan-cpp-contribution-rates>
- Samuelson, P. A. (1958). An exact consumption-loan model of interest with or without the social contrivance of money. *Journal of Political Economy*, 66, 467–482.
- Schieber, S. J. (2012). *The predictable surprise: The unraveling of the U.S. retirement system*. Oxford University Press.
- Seely, A. (2015). *National insurance contributions: An introduction*. House of Commons Library. <http://www.parliament.uk/business/publications/research/briefing-papers/SN04517/national-insurance-contributions-an-introduction>
- Steuerle, C. E. (2014). *Dead men ruling: How to restore fiscal freedom and rescue our future*. The Century Foundation Press.
- Steuerle, C. E., & Bakija, J. M. (1994). *Retooling social security for the 21st century: Right & wrong approaches to reform*. The Urban Institute Press.
- The Economist. (2016). Looking up: The link between income and mortality rates is weakening. May 14. <http://www.economist.com/news/united-states/21698702-link-between-income-and-mortality-rates-weakening-looking-up>
- Turner, J. A. (1984). Population age structure and the size of social security. *Southern Economic Journal*, 50, 1131–1146.
- Turner, J. A. (2004). Individual accounts: Lessons from Sweden. *International Social Security Review*, 57(1), 65–84.
- Turner, J. A. (2007a). *Autopilot: Self-adjusting mechanisms for sustainable retirement systems*. Society of Actuaries. <http://www.soa.org/Files/self-adjustment-mechanisms8.pdf>
- Turner, J. A. (2007b). Social security pensionable ages in OECD countries: 1949–2035. *International Social Security Review*, 60(1), 81–99.
- Turner, J. A. (2009). *Social security financing: Automatic adjustments to restore solvency*. American Association of Retired Persons (AARP) Public Policy Institute (PPI).
- Turner, J. A., & Klein, B. W. (2016). Modernizing the pension eligibility age for the U.S. military. *Journal of Retirement*, 2016(3), 116–127.
- Turner, J. A., Klein, B. W., & Stein, N. P. (2016). Financial illiteracy meets conflicted advice: The case of thrift savings plan rollovers. *Journal of Retirement*, 3(4), 47–66.
- Turner, J. A., & Rajnes, D. M. (2016). Social security old-age benefits in four OECD countries: policy lessons for the United States. *Journal of Retirement*, 4(2), 90–112.
- Turner, J. A & Verma, S. (2007). *Why some workers don't take 401(k) plan offers: Inertia versus economics*. CERP Working Paper 56/07. Center for Research on Pensions and Welfare Policies. [http://www.cerp.carloalberto.org/wp-content/uploads/2008/12/wp\\_56.pdf](http://www.cerp.carloalberto.org/wp-content/uploads/2008/12/wp_56.pdf)
- U.S. National Academy of Sciences. (2015). *The growing gap in life expectancy by income: implications for federal programs and policy responses*. National Academy of Sciences. [http://sites.nationalacademies.org/DBASSE/CPOP/Growing\\_Gap\\_in\\_Life\\_Expectancy\\_by\\_Income/index.htm](http://sites.nationalacademies.org/DBASSE/CPOP/Growing_Gap_in_Life_Expectancy_by_Income/index.htm)
- U.S. Social Security Administration. (2012). Canada. In *International update* (pp. 2–3). U.S. Social Security Administration. [http://www.ssa.gov/policy/docs/progdsc/intl\\_update/2012-05/2012-05.pdf](http://www.ssa.gov/policy/docs/progdsc/intl_update/2012-05/2012-05.pdf)
- U.S. Social Security Administration. (2014a). Germany. In *International update* (p. 1). U.S. Social Security Administration. [http://www.socialsecurity.gov/policy/docs/progdsc/intl\\_update/2014-07/index.html#germany](http://www.socialsecurity.gov/policy/docs/progdsc/intl_update/2014-07/index.html#germany)
- U.S. Social Security Administration. (2014b). Germany. In *Social security programs throughout the world: Europe, 2014* (pp. 114–121). U.S. Social Security Administration.

- U.S. Social Security Administration. (2017). *Ratio of Covered Workers to Beneficiaries*. Social Security History. Social Security Administration. <https://www.ssa.gov/history/ratios.html>
- U.S. Social Security Administration. (2018). *Social security programs throughout the world: Europe, 2018*. Social Security Administration. <https://www.ssa.gov/policy/docs/progdsc/ssptw/2018-2019/europe/index.html>
- U.S. Social Security Board of Trustees. (2015). *The 2015 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. U.S. Social Security Administration. [https://www.ssa.gov/oact/tr/2015/IV\\_B\\_LRest.html#222190](https://www.ssa.gov/oact/tr/2015/IV_B_LRest.html#222190)
- U.S. Social Security Administration. (2019). *The 2019 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. U.S. Social Security Administration.
- Weaver, K., & Willén, A. (2013). The Swedish pension system after twenty years: Mid-course corrections and lessons. *OECD Journal on Budgeting*, 13(3), 1–26. [http://www.oecd-ilibrary.org/governance/the-swedish-pension-system-after-twenty-years\\_budget-13-5jxx3sx58x9t](http://www.oecd-ilibrary.org/governance/the-swedish-pension-system-after-twenty-years_budget-13-5jxx3sx58x9t)
- Whitehouse, E. (2009). Pensions during the crisis: impact on retirement income systems and policy responses. *Geneva Papers*, 34, 536–547. <https://link.springer.com/content/pdf/10.1057/gpp.2009.25.pdf>
- Willis Towers Watson. (2014). *UK Statistics—February 2014*. Willis Towers Watson. [http://www.towerswatson.com/en-GB/Insights/Newsletters/Europe/uk-statistics/2014/UK-Statistics-February-2014?utm\\_source=SilverpopMailing&utm\\_medium=silverpop%20email&utm\\_campaign=36945\\_N\\_MonthlyStats\\_Feb2014\\_TWM%20\(1\)&utm\\_content=](http://www.towerswatson.com/en-GB/Insights/Newsletters/Europe/uk-statistics/2014/UK-Statistics-February-2014?utm_source=SilverpopMailing&utm_medium=silverpop%20email&utm_campaign=36945_N_MonthlyStats_Feb2014_TWM%20(1)&utm_content=)
- Willmore, L. (2007). Universal pensions for developing countries. *World Development*, 35(1), 24–25.



John Cleland

## Introduction

In 1950, very few couples in Asia, Latin America, and Africa practiced any form of deliberate pregnancy-prevention. Instead, the level of child-bearing was moderated by social customs, such as prolonged breastfeeding and restrictions on sexual intercourse. By 1990, close to 60% of married couples in Asia and Latin America were practicing contraception, mainly effective modern methods. In North Africa, the corresponding estimate was about 40%, but much lower, at around 10%, in other sub-regions of Africa. This profound and abrupt change in human behavior in little more than a single generation can rightly be termed a revolution. Unlike the earlier contraceptive transition in European populations, the shift in reproductive behavior in the low- and middle-income countries was typically fostered by the policies and programs of governments or large and well-funded non-government organizations (NGOs). The same is true for sub-Saharan Africa, where most of the action has occurred since 1990.

In some ways programs to promote contraceptive use differ little from other programs such as those for health and education. To be effective they need political support, adequate funding, well-trained staff, supervisory mechanisms, a

continuous supply of materials and products, an information system to evaluate progress and so on. What sets family planning apart from most other government programs, and makes the subject particularly interesting, is that need or demand cannot be assumed. Whereas prevention of death is always welcome, the idea of preventing childbearing, and the means to achieve it, may provoke anxiety and opposition. The legal trials of two birth control pioneers, Margaret Sanger and Annie Besant, in the U.S. and UK at the end of the 19th and start of the twentieth century clearly illustrate this point. It is thus unsurprising that contraceptive promotion in some low- and middle-income countries has had to contend with initial suspicion. Legitimation of contraceptive behavior and the concept of smaller family sizes has been a challenge, which did not have to be addressed in most other spheres of government activity.

The purpose of this chapter is to document the various ways in which governments and NGOs attempted to promote contraceptive use. The chapter starts with a consideration of the factors that led to population and family planning policies and programs. It then presents a framework that assists in an understanding of the potential, and limitations, of government actions to promote reproductive change. There follows a central section on program activities, most of which have observed the voluntary principle that couples should be free to decide how many children to have and whether or not to adopt

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contraception. Departures from this principle are then outlined. The chapter ends with a discussion of remaining challenges.

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### Conditions that Led to Family Planning Programs

Following World War II, child mortality fell rapidly in Asia and Latin America and, at a slower pace, in Africa. Medical advances, allied to the determination of many newly independent countries to improve health, can take much of the credit. Fertility, however, remained high, typically in the range of five to seven births per woman and in some countries it increased. Birth rates and death rates diverged with the inevitable consequence that rates of population growth increased. By the late 1950s, the populations of less developed regions were growing by over 2% per year, implying a doubling in size in less than 35 years.

This post-war era was a time of great optimism for the poorer countries of the world. It was widely believed that technological transfer would close the gap in living standards between rich and poor nations within a generation or so. Any barrier to progress had to be removed or circumvented. In 1958, a hugely influential publication by two American economists identified rapid population growth as one such barrier (Coale & Hoover, 1958). Their central thesis concerned the age structure of rapidly growing countries in which close to half of total population is under the age of 15 years and thus consuming but not producing. The implication was that government and household funds would be diverted from investment in industry and agricultural modernization to support the ever-swelling cohorts of young people, thus stifling economic development.

The Coale-Hoover volume was a measured economic analysis. The post-war era also witnessed a resurgence of much more apocalyptic and Malthusian publications, culminating in the 1968 book *'The Population Bomb'* by Paul and Anne Ehrlich. Dire warnings were issued that overpopulation would lead to famine, war,

environmental degradation, and the collapse of civilizations. Some of the fears expressed by the Ehrlichs and earlier authors, such as Fairburn Osborn and William Vogt, were unfounded and perhaps tinged with xenophobia, but not all (Desrochers & Hoffbauer, 2009). Concerns about food security, in the period before the Green Revolution, were genuine; after all, India was dependent on imports of grain from the U.S. under the PL480 scheme, particularly following crop failures in the mid-1960s (Hatti, 1977). And alarm about environmental destruction, as the result of increases in population size and consumption, resonates with current alarm about climate change, pollution of oceans, and de-forestation. In the 1960s, influential pressure groups such as the Population Crisis Committee and Zero Population Growth arose in the U.S.

These concerns rose to the highest levels of U.S. policy-making. In 1965, U.S. President Lyndon Johnson, at an address to the 20th anniversary session of the United Nations, declared that *"less than five dollars invested in population control is worth a hundred dollars invested in economic growth."* Robert McNamara, president of the World Bank from 1968–1981, was an equally emphatic advocate of population control, describing population growth as *"the greatest single obstacle to economic and social advancement of the majority of the peoples in the underdeveloped world"* (Symonds & Carder, 1973: 17). These views did not go uncontested. Both Marxists and libertarian economists, such as Julian Simon, denied that population was a problem. In 1968, the Vatican reaffirmed its opposition to all methods of contraception except abstinence. But when the two most powerful men in the world, Johnson and McNamara, were united in their alarm, action was inevitable.

The most obvious solution was to encourage couples to limit childbearing by contraception but it was unclear whether this strategy would be effective. The experience of rich nations offered no blueprint for action. Fertility had declined in Europe and its overseas populations spontaneously, often in the face of opposition from political elites, religious leaders, and the medical

profession and by means of rudimentary methods, notably *coitus interruptus*. It was unclear whether widespread latent demand for contraception existed in poor countries and whether there was any willingness to adopt contraceptive precautions. The need for research was pressing and its main manifestation took the form of Knowledge, Attitude, and Practice (KAP) surveys to ascertain reproductive desires and interest in contraception. Many surveys were funded by the Ford and Rockefeller Foundations who took the lead in these and other pioneering efforts. The indications from these surveys were broadly favorable. Couples in Asia and Latin America did not want large families, typically preferring two to four children, and appeared to be interested in contraception (Mauldin, 1965).

The next logical step was to conduct small-scale 'demonstration' projects to assess the effect of providing contraceptive services. These were fielded in the Republic of Korea, Thailand, India, and other countries but the best known and best documented one took place in the city of Taichung, Taiwan (Freedman & Takeshita, 1969). The Taichung experiment was a success. It was clear that contraceptive promotion could be effective even in a poor and ill-educated population; at that time, 42% of wives in the project area were illiterate.

The final piece in the jigsaw puzzle that made mass provision of contraception feasible and affordable was the advent of new methods. Prior to 1960, contraceptive technology was primitive, mainly reliant on barrier devices, such as condoms. Condoms, however, were expensive and difficult to use consistently. In 1962, a new intra-uterine device (IUD), the Lippes Loop, was introduced. It was highly effective, cheap, and once inserted, required no memory or skill to use. At the same time, oral contraceptives were licensed and techniques of male and female sterilization simplified. For the first time in history, a choice of effective means of preventing pregnancy was available. The main onus of preventing pregnancy now fell to women whereas, in an earlier era, the active participation of men had been central.

The stage was now set for a totally new form of social engineering: state promotion of contraception. In the early phase, the key rationale was the demographic-economic one, following the Coale-Hoover analysis. However, at a time when maternal mortality rates were high and abortion dangerous, the health benefits to women of avoiding unwelcome pregnancies were obvious and the enhanced freedom to choose the timing and number of children represented a big step forward in human agency.

Asian governments were quicker and more enthusiastic to enact population policies and to instigate family planning programs than those in other regions. India was the first country to promote contraception in 1952 though little action followed for many years. In the 1960s, Singapore, Sri Lanka, Pakistan, Indonesia, and Malaysia adopted policies and programs, followed by Thailand and Philippines in the 1970s. In Latin America, governments were reluctant to support the idea of population control, partly because of opposition from the Roman Catholic Church. Family planning services in this region were typically spearheaded by powerful and well-funded NGOs such as *Profamilia* in Colombia, created in 1965, and *BEMFAM* in Brazil. In North Africa, Egypt and Tunisia introduced programs in the 1960s but the rich oil-producing countries with small indigenous populations remained uninterested. In sub-Saharan Africa, with the exception of South Africa and Rhodesia, both white-dominated regimes, and of Kenya there was little decisive action until the 1990s. By 1998, the number of countries offering direct support for family planning had risen to 145 from 94 in 1976.

It is important to stress that policies to promote contraceptive use did not arise in a vacuum. Rather they are best seen as one of many policy initiatives for broad social and economic development, in the fields of health, education, women's empowerment, and industrial growth. Indeed, it is unlikely that radical changes in reproductive behavior, whether spontaneous or influenced by state programs, could have occurred without many simultaneous changes in people's lives and aspirations.

## A Framework for Analysis

To clarify the potential and limitations of policies and programs to reduce fertility, it will be helpful to situate the discussion within a framework for understanding fertility trends. The Synthesis Framework of Richard Easterlin (1975) is the most appropriate. His framework has three main components: demand for children, supply of children, and costs of fertility regulation.

*Demand, or desire, for children* is regarded as the flow of benefits from offspring, both economic and emotional, to the parents or wider kin, set against the costs. The concept can be expanded to include desired timing of children, of particular importance in sub-Saharan Africa. Falling demand for children is seen, particularly by economists, as the key driver of fertility transition. Modernization of societies, it is plausibly argued, reduces the benefits of children and raises their costs.

Measures of demand come from surveys in the form of responses to questions on total desired family size and on whether any more children are desired.

*Supply of children* refers to the expected number of surviving children per couple in the absence of deliberate control. It is moderated by two main factors. In societies with strict codes of sexual behavior, marriage ages have a large potential effect on fertility, and prolonged breastfeeding is another major constraint. Though largely ignored by Easterlin, it is clear that mortality decline was the major force in increasing supply. In 1900, it may be inferred from the low rates of population growth that the number of children surviving to adulthood per couple in poor countries was close to two. By 1950, this number had risen to somewhere in the range of four to six.

The most convenient measure of supply is the *net reproduction rate* for societies at a time when fertility regulation was rare. This rate calibrates the number of daughters that an average woman can expect to survive to adulthood at prevailing fertility and mortality rates. Doubling the net reproduction rate gives an approximation of how many children of either sex will survive to

adulthood. Estimates of the net reproduction rate are routinely available from the UN Population Division.

*Costs of regulation* assume importance when supply, or anticipated supply of children, exceeds demand. They determine whether or not prevention of births occurs. Costs extend beyond the obvious considerations of knowledge, affordability, and access to methods to include the moral and social concerns about the principle of breaking the nexus between sex and procreation and health worries about the use of particular methods.

Costs are extremely difficult to measure. Early Demographic and Health Surveys (DHSs) routinely enquired whether respondents 'approved' of family planning and whether they had an intention to use contraception at any time in the future, but these are superficial indicators. More telling evidence can be derived from ethnographic and qualitative studies.

In theory, population policies to reduce fertility or population growth can act on all three of these components: demand, supply, and costs.

1. Demand for children can be influenced directly in either direction by incentives or penalties, or by legal enforcement. It may be influenced by exhortation through mass media and other channels that heighten awareness of the benefits of small families, or indirectly by broad socioeconomic measures. For instance, demand may be reduced by raising school enrolment and retention or by providing opportunities for women to seek non-domestic employment. Alternatively, demand may be increased by generous parental leave or by provision of free pre-school nurseries. The links between socioeconomic development, contraceptive uptake, and fertility decline have been an abiding focus of demographic research for decades but will not be considered further in this chapter. Suffice it to say that, while social indicators of progress, in particular adult education, are strongly correlated with the timing and speed of fertility decline, contraceptive practice can spread at very low levels of development. The



contribution of family planning programs to fertility decline is analyzed in this *Handbook* in Chap. 5: *Population, Development, and Policy* (Bongaarts et al., [this volume](#)) and Chap. 24: *Measuring the Effectiveness, Efficiency, and Impact of Population Policies* (Tarsilla, [this volume](#)).

2. Supply of surviving children can be reduced by policies to delay marriage, particularly in societies with strong sanctions against pre-marital sex and childbearing. This strategy was a major component of China's population policy in the 1970s and delayed marriage has made an appreciable contribution to fertility decline, for instance in North Africa. However, apart from measures to enforce laws on minimum age at marriage, explicit policies to delay marriage have been rare and this topic will not be considered further. Similarly, prolonged breastfeeding acts a major break on supply. Programs to encourage breastfeeding for the first 6 months for child health reasons are common but adherence to this advice will have only a minor effect on fertility. No country has encouraged longer durations with the aim of reducing the supply of children. As mentioned above, the most pronounced influence on supply is improved child survival. Falls in child mortality, of course, act in the short and medium term to raise population growth but in the longer term reduce the need for frequent childbirth. Despite its centrality to demographic transition, child survival has played no explicit part in government policy agendas to reduce population growth. Rather, improved child survival is regarded as an imperative societal aim in its own right.
3. Reduction of the costs of regulation is the main population policy lever and has provided the enduring mandate of family planning programs, namely to enable couples to choose how many children to have and the timing of births. Much of this chapter is devoted to a description of the myriad ways in which policies and programs have sought to reduce costs.

Countries and regions vary on all three of Easterlin's components. The earliest surveys in Asia and Latin America, conducted in the late 1950s and 1960s typically showed that most couples wanted to have two to four children; many women in their 30s wanted to stop childbearing altogether (Mauldin, [1965](#)). In sub-Saharan Africa, desired family sizes were (and remain) much larger and fewer women wanted to stop. For instance, World Fertility Surveys, conducted in the 1970s and early 1980s, showed that desired sizes among young women in seven African countries ranged from 5.2 in Ghana to 8.3 children in Senegal. By contrast, in only one (Syria) of fourteen Asian and Pacific countries did the mean desired size exceed five children. In thirteen Latin American and Caribbean countries, the highest desired size was 3.8 children in Mexico (Lightbourne, [1987](#)).

Supply of surviving children peaked in Asia and Latin America in the 1960s, before the advent of widespread contraception, at around 4 and 4.6 children per woman, respectively, and in sub-Saharan Africa two decades later at the same level as Latin America. Wide inter-country variability is apparent. At the start of fertility decline, the average couple in India and Indonesia could expect about 3.6 surviving children. In contrast, this expectation was close to six children in Kenya and Syria because of a combination of a high birth rate and high child survival (Cleland, [2001a](#)). Though variations in supply will not be considered further, an important lesson can be drawn: no threshold in child survival has to be attained before fertility decline can occur in response to increasing contraceptive use.

Costs of regulation also vary. In some countries, the transition from a non-contracepting to a contracepting reproductive culture appears to have been seamless. In others, the transition from a system in which personal control of childbearing within marriage is considered impossible, or socially or morally unacceptable, to one in which such control is compatible with religious values, socially acceptable, poses no threat to health, and is technically feasible has proved much more difficult.

It follows that a crude classification of countries can be attempted. Demand for children and costs of regulation may be high or low. When demand is low, or least moderate, and costs are low, the success of policies and programs to reduce fertility is guaranteed. A ready clientele for contraceptive services exists. Indeed, state policies and programs may be unnecessary, as illustrated by the European example. The countries of East Asia and Latin America fall into this category. In Latin America, 'light touch' programs proved sufficient for widespread use of contraception. The same may have proved sufficient in the countries of East Asia but, in the 1960s and 1970s, this was not apparent and most of them implemented strong policies.

A second category comprises countries where demand for children is modest but costs are high, at least initially. The countries of South Asia belong here. In Bangladesh, the advent of female family planning workers caused an initial social uproar (Simmonds et al., 1988). In Pakistan, one of main obstacles to contraceptive adoption was identified as fear of social disapproval (Casterline et al., 2001). Disquiet about contraception is often expressed in terms of health. In Nepal, all contraceptive methods were seen by women to carry profound health risks (Stash, 1999). In these countries, motivation to regulate fertility existed but was latent or fragile. Well-designed programs, with a strong communication component, are likely to be effective, though not immediately. The temptation for governments was to press too hard on the accelerator of change and deploy strategies that threatened the voluntary principle.

As the combination of high demand for children and low costs of regulation is improbable, we are left with a third category where both demand for children and costs of regulation are high. Most of the countries of sub-Saharan Africa belong in this group. Early DHSs in West Africa showed that less than half of women approved of contraception and stated intention to use in the future was similarly low. Abundant ethnographic evidence shows that many African women view contraception with considerable fear about health and possible permanent impairment of future childbearing (Rutenberg & Watkins, 1997;

Gueye et al., 2015; Muanda et al., 2016; Staveteig, 2017). No doubt the perception by political elites that large families were highly valued delayed the introduction of programs with strong political backing. The HIV pandemic then sucked energy and funds away from family planning. And when serious programs have been launched, success has been elusive in many countries.

The prevalent desire for large numbers of children in Africa brings to the fore the crucial question of whether or not programs to promote contraception can reduce pronatalist attitudes. The dominant view is negative. Desired fertility, it is argued, is firmly rooted in social institutions and economic fabric and can only be shifted by structural change. But there are two possible ways in which programs may have an influence. The first is simply by exhortation, namely communication of the advantages of small families. The second is more subtle but probably more powerful. Motives and means are likely to interact. The legitimization of contraception and the advent of reproductive choice may prompt a re-consideration of how many children are wanted. An analysis comparing similar countries but with divergent family planning policies and programs suggested that strong programs can reduce family size preferences (Bongaarts, 2011).

Kenya provides a particularly telling sequence. In the World Fertility Survey of 1979–80, only 16% of all married women wanted no more children but within a decade this proportion had swelled to 49%. This decade saw the implementation of a vigorous family planning program, with a strong informational and educational component, led by President Moi and Vice-President Kibaki, and a surge in contraceptive adoption. This sequence suggests that reproductive aspirations can be abruptly de-stabilized by the advent of reproductive choice. Something similar may have occurred in Rwanda. In this country, the dramatic rise in the percent wishing to stop at three children in the first decade of this century, from 23 to 56%, coincided with a major re-invigoration of family planning under the auspices of President Kagame. However, puzzles remain and the evidence is far from conclusive.

In Zambia, use of a modern contraceptive method rose sharply from about 20% in 2000 to 45% in 2013, about the same level of use as in Rwanda, but without the revolution in reproductive attitudes.

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## The Fundamentals of Family Planning Programs: AAAQ

The majority of family planning programs have been entirely voluntary. Deviations from this norm will be considered later. Their mandate is to reduce the costs of regulation and thus allow couples to have the number and timing of children that they desire. The operating space or opportunity for programs to catalyze change is the gap between desires and behavior. This was initially termed the Knowledge, Attitude and Practice (KAP) gap but soon became known as unmet need for family planning and was measured by the proportion of women who report in surveys a desire to have no more children or to avoid child-birth for at least 2 years but are taking no contraceptive precautions to achieve this (Westoff, 1978). The concept of unmet need has been an essential bridge between population control and reproductive rights rationales for family planning programs. In many countries, economic-demographic goals to reduce fertility can be met by addressing unmet need (Casterline & Sinding, 2000). Since the 1994 International Conference on Population and Development (ICPD), the reproductive rights rationale has been dominant (see Chap. 15: *Population Institutions and International Population Conferences* of this *Handbook* for further discussion of international population conferences [Bernstein et al., [this volume](#)]).

The principles underlying voluntary programs can be conveniently summarized by the acronym AAAQ, standing for availability, accessibility, acceptability, and quality (Hardee et al., 2014). Each is now discussed.

## Availability

Availability refers to the existence of a functioning health system with national coverage and an adequate supply chain for contraceptives. Its importance stems from the fact that the majority of users in most countries obtain contraceptives from health facilities. Lack of availability, particularly in rural areas, posed a barrier for many Asian countries in the 1960s. At that time rural health services were largely staffed by men performing mechanical tasks such as immunization, sanitation, and contact tracing, a combination clearly unsuitable for the delicate task of providing contraceptive advice and products for women. One solution, as in India and Bangladesh, was to create new divisions devoted to family planning within the ministries of health and train new cadres of staff. Another solution, adopted by Pakistan and Indonesia, was to form new ministries or agencies to address contraception. Indonesia is a particularly notable example. In 1970, a semi-autonomous agency, known by its Indonesian initials, BKKBN, was set up. It reported directly to the president. By the mid-1980s, it had a staff of 24,000 with many more volunteers (Warwick, 1986).

Despite repeated calls by the World Health Organization (WHO) and the World Bank for universal access to quality primary healthcare, fragile and under-staffed health systems in many poor countries remain a severe constraint on the availability of contraceptive services.

Ways in which family planning is integrated into health services can take many forms. At one extreme, a multi-purpose worker is equipped to provide a range of services, for instance immunization, curative care, and contraception. More commonly, specific services are provided by different staff at the same facility. Alternatively, integration can take the form of referral between facilities. It remains unclear which mode of integration is most effective (Kuhlmann et al., 2010).

Integration of contraception into maternity services through postpartum family planning, was once a top international priority. Between 1963 and 1974, 138 hospitals in 21 countries participated in the Population Council's International Postpartum Program. Interest then faded but has revived more recently. The attraction is two-fold. Both before and after childbirth, women come into frequent contact with health services, with a sequence of antenatal visits, institutional delivery and child health services including immunization. Opportunities for counselling exist at all stages and methods can be provided before discharge from maternity wards or later in the postpartum period. The second attraction is that couples are highly motivated to delay another pregnancy. In countries where sterilization is a major method, the proportion of procedures performed immediately after delivery ranges from 12% in China, 22% in India, to 78% in Brazil. Recent interventions have focused on the IUD with varying success (Cleland et al., 2015). It is clear that many women prefer to await the return of menses before adopting a method, a tactic that runs a small risk of unintended pregnancy but makes optimal use of lactational amenorrhea, which averages about 12 months in sub-Saharan Africa.

A further form of integration that has received much recent attention, particularly in Eastern and Southern Africa, concerns HIV and family planning. Family planning clinics can add voluntary testing and counselling for HIV or, more commonly, HIV centers can incorporate contraceptive counselling, provision, or referral. Initially, the emphasis was on condom use, or double method protection, to prevent transmission but, with widespread access to anti-viral therapy at early stages of infection, access to more effective non-barrier methods is justified. A systematic review found moderate support for the expectation that integration raises contraceptive protection among women living with HIV (Haberlen et al., 2017). This topic is examined more fully in Chap. 20: *Linkages Between Family Planning and HIV/AIDS Programs* of this *Handbook* (Robinson, [this volume](#)).

A continuous supply of contraceptive commodities is an essential component of availability and this has required major investments to improve international procurement, in-country distribution, information systems, and management. Since 2004, coordination has been the responsibility of the Reproductive Health Supplies Coalition, based in Brussels. Though lack of a method is rarely cited by women as a reason for discontinuing use, stockouts remain a problem (Douglas-Durham et al., 2015).

### Accessibility

Accessibility may be regarded as an extension of availability and encompasses information, affordability, physical access, and non-discrimination, for instance denial of contraceptives to unmarried women. Information about methods, their properties, and where to access them is achieved by communication through mass media, inter-personal channels, and, more recently, social media. Affordability has been accomplished in many countries by free services, made possible by international financial support, though informal payments often remain (Tumlinson et al., 2020). As discussed in a separate section below, some Asian programs have gone further by making payments to clients for accepting certain methods, ostensibly to offset costs of travel or lost wages (Ross & Isaacs, 1988). About 20 programs have addressed affordability by voucher schemes. Disadvantaged women are identified and given vouchers that entitle them to free services, often restricted to long-acting methods, from contracted private- or public-sector providers. Though complex to administer and vulnerable to corruption, the limited evidence suggests that some have been effective at raising contraceptive use (Bellows et al., 2016).

Enhancing physical access to contraceptive advice and products has been a major focus of programs from the start. Access is not restricted to public-sector facilities and staff. The contribution of private medical practitioners to contraceptive

provision is substantial, though varying widely between countries, depending on the scale of public-sector provision and income levels. A multi-country analysis, based on DHS data, showed that 45% of injectable users, 25% of IUD or implant users, and 15% of sterilization cases relied on private practitioners (Campbell et al., 2015). Deliberate efforts to engage private practitioners and raise their quality of services frequently take the form of social franchising. Franchising schemes, usually run by NGOs, involves the recruitment of a network of practitioners who receive training, supportive supervision, quality-assurance measures and access to contraceptive commodities. About 70 such schemes exist though their scale varies widely and evidence is insufficient to reach any judgement on their effectiveness (USAID, 2018; Weinberger et al., 2019).

Access can be enhanced by mobile clinics. In India and Nepal, many sterilizations were performed by mobile teams of surgeons at temporary ‘camps’, where dozens, or even scores, of procedures were performed in a day. The quality of care at some of these Indian camps came under severe criticism and this approach was officially stopped in 2006 (Koenig & Khan, 1999). No such criticism can be directed at more recent mobile clinics, notably those run by Marie Stopes International (Gillian, 2010).

Physical distance from a supply source does not appear to be a major constraint on contraceptive uptake; perceived quality of the facility is more important (Elewonibi et al., 2020). Nevertheless, many family planning programs have been pioneers in escaping the straitjacket of fixed facility provision by introducing community-based dimensions to the provision of advice and supplies. All involve local provision of contraceptive information and advice, and usually supplies, in a non-clinical setting but their operational designs have taken a myriad of forms. Community-based workers may be exclusively women or of both sexes; paid or volunteers; exclusively dedicated to family planning or also providing rudimentary health services; passive holders of contraceptive supplies, engaged in doorstep delivery, or confined to advocacy and

information. Their recruitment, length of training, style of supervision, and links to a facility also vary. The most common, and enduring, programs have the following features: female staff are recruited locally, typically trained for about 1 month, paid a regular salary or performance-based remuneration, and expected to provide doorstep services on health as well as contraception (Scott et al., 2015).

The contribution of community-based approaches to family planning programs ranges widely between countries. In India, a new cadre of worker, the auxiliary nurse midwife (ANM), was introduced in the 1960s. Though initially restricted to doorstep provision of condoms and pills and counselling on other methods, their duties were soon expanded to encompass child health (Visaria & Ved, 2016). However, pills and condoms have never been widely used in India and the main role of ANMs has been to ‘motivate’ women for sterilization, the dominant method. A further limitation was the difficulty of recruitment of staff in the conservative Northern states, necessitating the posting of women from Southern states, who were unfamiliar with local customs and dialects and thus lacked credibility. In 2006, the government launched a new scheme of female semi-volunteers, the accredited social health activists (ASHAs), who receive performance-based incentives. Recruited locally and trained for a few weeks, their mandate is to encourage women to use health and family planning services. By 2015, nearly one million ASHAs were in post. Evidence of their catalytic effect on use of maternity services is positive, though the contribution of ASHAs to contraceptive protection is unclear (Agarwal et al., 2019).

Community workers are credited with much of the unexpected success of the family planning program in Bangladesh. A cadre of literate married women, family welfare assistants (FWAs), were recruited, trained for a few weeks, and then posted back to their village to provide household delivery of pills and condoms, counsel on other methods, and advise on child health. At their peak they numbered nearly 30,000. Their literacy commanded respect and their local residence enhanced credibility. Thus,

they proved to be an effective bridge between village life and the alien world of health facilities and modern contraceptives. By accompanying women to health facilities, they overcame access restrictions, stemming from the strong tradition of *purdah*. Unlike India, oral contraception is a major method and it was estimated that, between 1978 and 1997, FWAs accounted for 85% of pill distributions in rural areas (Phillips & Hossain, 2003). In the early 1990s, Pakistan adopted a similar scheme, that recorded a degree of success (Douthwaite & Ward, 2005).

A community-based approach was central to the spectacular success of Iran's family planning program since 1990. Over 15,000 health houses were created, each staffed by one female and one male worker, recruited by the community and serving an average population of 1500. Staff provided basic health services, together with family planning (Roudi-Fahimi & El-Adawy, 2005).

Outreach activities were also a crucial component in Indonesia, similar to Bangladesh in that contraceptive use rose rapidly at low levels of development. In addition to paid field workers, family planning advocacy and supplies were closely integrated with local leadership, including village heads and their wives. Village depots for contraceptive commodities were created and acceptor groups formed. Many thousands of volunteers from women's organizations were trained and acted to promote family planning (Warwick, 1986; Shiffman, 2004).

A major review of community-based projects in sub-Saharan Africa identified many types, ranging from a centrally organized program of contraceptive distributors in Zimbabwe, a proliferation of de-centralized efforts in Kenya, to incorporation of market vendors in Nigeria (Phillips et al., 1999). One of the most carefully designed and well documented project took place in Navrongo, Northern Ghana, a setting characterized by polygyny, patriarchy, and adherence to traditional religion (Binka et al., 1995). Despite the inauspicious circumstances, the project achieved a degree of success by carefully linking services to traditional leadership and addressing the concerns of men.

The clearest success of community schemes in Africa is recorded by Ethiopia, a country like Bangladesh and Indonesia that has a low level of socioeconomic development but a determined and committed political leadership. In 2003, the government started a scheme to recruit female health extension workers (HEWs), train them in health and family planning for the unusually long period of 12 months, and then post them back to their communities in pairs. Selection of candidates is done by village committees, thereby ensuring a degree of community ownership. The rationale behind the pairing of HEWs is that one is based at a health post, while the other visits households. By 2010, over 30,000 HEWs were in post. Their contribution to the remarkable increase in contraceptive use has been substantial (Medhanyie et al., 2012). One reason for their impact is that HEWs can provide injectable contraception, the main method in Ethiopia, and in 2009 training in implant insertion started.

The effectiveness of community-based schemes is by no means guaranteed. In the early 1970s, Pakistan tried a 'continuous motivation' scheme involving pairs of male and female field workers (Ahmad, 1971). This arrangement proved unsuitable for such a sex-segregated society. The project was also accused of infiltration by political parties and it was abandoned. More recently, a cluster randomized trial of doorstep provision of pills and condoms in Tanzania had no effect. One reason suggested was lack of attention to social support (Sheff et al., 2019). Multi-country evidence also shows that few contraceptive users report community workers as their source of supply though this ignores their possible role in referral (Campbell et al., 2015).

Whereas community-based initiatives are most appropriate for rural communities with constrained access to fixed facilities, the opposite holds for the final major way in which family planning programs have improved accessibility, namely social marketing which depends on a well-developed commercial infrastructure. Social marketing harnesses commercial techniques, including mass media advertising, point of sale promotion, strong branding, and market

segmentation, to sell contraceptive products at medical stores and other retail outlets at subsidized prices. Most are organized by large NGOs, such as Population Services International and DKT International. Social marketing is most effective: where pills and condoms are widely used, though injectables and long-acting methods are included in some programs, when demand for contraception is well established, and when exposure to mass media is high.

Most family planning programs include a social marketing component and retail outlets account for close to half of pill and condom use (Campbell et al., 2015). The HIV pandemic triggered a huge increase in condom marketing, though association of this method with disease prevention may have done little to promote its use for pregnancy-prevention.

The purchase of condoms and pills from medical stores is typically quick and anonymous and thus particularly attractive for single individuals, who may encounter disapproval from staff in a clinical setting. In sub-Saharan Africa, condoms are the most commonly used method of contraception by single young women and 80% of users rely on a commercial source of supply (Ali & Cleland, 2018; Radovich et al., 2017). The corresponding estimate for pills is about 30%. Because of the condom's dual protection property, the current enthusiasm for promoting hormonal methods for adolescents is ill-judged in populations where risks of infection from HIV or classical sexually transmitted infections remain high.

## Acceptability

Acceptability is often defined narrowly to mean that services are culturally sensitive. Here the term is broadened to encompass the transition from a situation where contraception and its methods are regarded as alien, disturbing, and perhaps frightening to a situation where they are regarded as a normal, socially accepted part of everyday life. Legitimation of contraception, particularly in countries with high initial costs of regulation, has been an important component of

family planning programs and pursued in a variety of ways: mass media in didactic or entertainment mode; endorsement by political and religious leaders and by sporting or other celebrities; active engagement by women's groups and so on. Considerable creativity has been displayed. Senator Mechai Viravaidya in Thailand, among many other promotional activities, sponsored condom-inflation competitions with the aim of using humor to defuse concerns about this method. In the Gilbert Islands, now Kiribati, an inter-island song competition on the theme of family planning was organized and broadcast for weeks on national radio. In Iran, couples have to undergo an educational session on family planning before marriage.

By far the most important form of communication and potential source of legitimation is between individuals. A large body of evidence, including spatial modelling and more ethnographic studies, testifies to the social influence of inter-personal networks (Cleland, 2001b). Far from making autonomous decisions about contraception, women and couples seek out the views and experiences of relatives or friends who have tried a method before they adopt, or not. Satisfied users are thus crucial to the diffusion of contraceptive practice. Unsurprisingly, contraceptive use typically starts among more educated, urban strata, who are more exposed and receptive to new knowledge and ideas, before spreading to less privileged segments. This sequence can lead to very large but temporary socioeconomic differences in fertility (Weitzke, 2020). One major purpose of programs is to accelerate this diffusion.

Acceptability also has a political dimension. Coalitions of support among policy elites has been an important ingredient of successful and effective family planning programs. Conversely, in countries where family planning has proved divisive and controversial, widespread acceptability has been more difficult to achieve. In the Philippines, the Catholic hierarchy bitterly opposed modern methods of contraception. In 1986, when Corazon Aquino, who drew her support from conservative, Catholic quarters,

replaced Ferdinand Marcos, a strong supporter of population policy, as president, family planning disappeared from the policy agenda (Herrin, 2007). This legacy has had enduring implications. Philippines has higher unmet need and fertility than would be expected from the country's educational profile. Similarly, in Pakistan, the topic became embroiled in politics. In the 1960s President Ayub Khan launched a vigorous, albeit flawed, program but when Zulfikar Bhutto became the country's leader in 1971 he was reluctant to support any policy associated with his bitter opponent and top-level support for family planning withered further under President Zia-ul-Haq, who drew his support from conservative Islamic strata (Khan, 1996). Again, an enduring legacy is apparent: the level of contraceptive use in Pakistan is among the lowest in Asia.

## Quality

Following a seminal paper by Judith Bruce, quality has attracted much attention, in part, it may be surmised, in reaction to the somewhat callous nature of some early Asian programs (Bruce, 1990). Bruce proposed a framework of six components: (1) technical competence of staff; (2) an appropriate constellation of services; (3) interpersonal relations between staff and clients, including adequate respect and consideration; (4) availability of a choice of methods; (5) information given to clients about the range of methods and their relative advantages and disadvantages; and (6) mechanisms to encourage continuity of use.

This paper stimulated much research into measurement of quality, the most recent and simplest of which has three components: availability of methods, information given to clients on methods, and success of contraceptive adopters to avoid unintended pregnancies (Jain, 2018). Such is the influence of the stress on quality that DHSs now routinely enquire of women whether, at time of method initiation, they were told about other available methods, side effects, and the possibility of switching.

An appropriate constellation of services has been discussed above. Technical competence and treatment of clients with respect are extremely important but require no further elaboration. Method choice and continuity of use merit further consideration.

Method choice is one of the most intriguing but least understood elements of international family planning. In the 1960s, when some family planning programs were initiated, the range of available modern methods was limited to male and female sterilization, IUDs, pills, and condoms. Over time this range expanded to include injectables, implants, vaginal rings, emergency contraception, and improved versions of periodic abstinence. Moreover, most of these generic types of method have variants. Ideally, a spread across all major method-types might be expected: condoms for those at risk of sexually transmitted infections or when sex is infrequent; pills or injectables for those requiring short-term protection; copper-bearing IUDs for those who dislike the idea of hormonal methods; IUDs or implants for those who need long-term protection; and sterilization for couples who have taken a firm decision to stop childbearing.

The reality is quite different. An analysis of 109 national surveys found that 30% of them displayed a method-mix in which half or more of all users relied on the same single method (Bertrand et al., 2014). Surprisingly, the degree of skewness was unrelated to the level of socio-economic development or strength of the family planning program. Germany and France, for instance, have extremely skewed distributions, favoring the pill. It is sometimes assumed that cultural preference must be the explanation but the evidence suggests otherwise. In Bangladesh, for instance, the pill accounts for 41% of use and female sterilization for 8%. In the neighboring Indian State of West Bengal, the corresponding estimates are 16 and 45%, respectively. In Zimbabwe, 66% of users take pills and 13% use injectables whereas, in Kenya, the relative uptake is reversed, 44% for injectables and 11% for pills. In Egypt, IUDs are dominant; in Morocco, pills are. These few examples of many possibilities



suffice to make the point: culture is unlikely to underpin the relative popularity of different methods.

What then is the explanation? The answer is twofold: policy decisions and priorities, and social influence. Policy decisions were sometimes decisive. Many countries in the Soviet Union, before 1990, banned the import of most modern methods, with the consequence that *coitus interruptus* remained a major method; legal abortion was readily accessible and abortion rates in many of these countries were among the world's highest. The Chinese and Vietnamese programs explicitly focused on IUDs, because of the high effectiveness and low cost of this method. In Indonesia, the government reached an accommodation with Islamic leaders not to encourage sterilization. In Japan, the medical profession opposed hormonal methods and condoms became the dominant method. In the late 1970s and 1980s, the program in rural Mexico placed particular emphasis on postpartum sterilization and IUDs with the consequence that the contribution of hormonal methods shrank and the method-mix narrowed. Market forces were relevant in some countries. In a context of government indifference to family planning, pharmaceutical companies in Brazil exploited a legal loophole that allowed over the counter sale of oral contraceptives. At the same time hospital medical practitioners, responding to a demand for an alternative method, began to offer postpartum sterilization together with caesarean sections, with payment made ostensibly for the latter. Sterilization and pills remain the dominant methods in this country.

Method-specific targets and payments are also important threats to method-choice but are considered in a later section. More generally, in the early days of family planning programs, the focus had to be on narrow range of methods because trying to make all major methods equally accessible would have posed an impossible training and logistical burden. And once a particular method becomes established, the power of inter-personal influence acts as a multiplier. The familiar becomes the desirable, both among the general population and providers (Potter, 1999).

Individuals naturally prefer a method that others in their social circle have tried with success. Providers are reluctant to suggest an unfamiliar method, particularly if it requires skill to administer, as in the case of IUDs. It has proved difficult to change or broaden an established method-mix, except with the advent of a totally new method, such as injectables or implants.

This digression into method-choice is relevant to component 5 of the Bruce framework: information given to clients about the range of methods. Most women who present at a family planning clinic have a preferred method in mind, typically based on information received from their social networks. In such cases, it is surely unnecessary, and may even be counter-productive, for providers to counsel on all available methods, unless a medical contraindication to the preferred method is identified.

Encouragement of continuity of use, component six of the Bruce framework, is of huge importance. For methods that require re-supply (pills, injectables, and condoms) typically about 40% of users will discontinue use in the first 12 months of adoption and the most common reason is some form of dissatisfaction with the method, mainly side effects and health concerns. Of those who stop use for method-related reasons, the probability of prompt switching to an alternative varies widely between countries, being less than 40% in African countries with relevant data but higher elsewhere (Ali et al., 2012). A cross-country analysis showed that past users accounted on average for 38% of all those with unmet need for family planning (Jain et al., 2013). One reaction has been to promote long-acting methods, IUDs and implants, which have much lower probabilities of discontinuation, primarily because it requires a deliberate decision and a visit to a facility to remove the device, whereas stopping a method such as the pill requires no mental or other effort. A further attraction of long-acting methods is their low cost per year of protection. A more recent innovation to encourage continuation of use is automated messaging via smart phones.

Another reaction to the problem of discontinuation has been to strengthen counselling and to

forewarn women about possible side effects and assuage fears, at the time of method initiation. The merits are obvious. Women have a right to such information but evidence of its effectiveness in terms of enhancing continuity of use is weak (Halpern et al., 2006; Cavallaro et al., 2019). Nor is the problem confined to poorer countries. The 12-month all-cause discontinuation of the pill in France was estimated to be 31%, two-thirds of which was method-related (Moreau et al., 2009). The inevitable conclusion is that discontinuation of contraceptive use, particularly when persistent use requires an effort, is no different from failure to adhere to other forms of long-term medication (WHO, 2003).

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### **Departures from, and Threats to, the Voluntary Principle**

Most population policies and family planning programs adhere to the principle that couples should be free to choose: how many children to have; whether or not to use contraception; and adopt a particular method from those available. Departures from the voluntary principle, more common in the early decades of the international family planning movement than in recent decades, stemmed primarily from skepticism that an entirely voluntary approach would be effective. Actions took several forms and ranged in severity from well-intentioned but biased counselling about particular methods to outright coercion. Threats to volunteerism are considered below under the following overlapping themes: the use of payments, benefits, or penalties to influence reproductive behavior; implementation of numerical targets; provider bias; and extreme pressure.

### **Payments, Benefits, and Penalties**

Payments and benefits with a pronatalist intent are much more common than payments with the contrary motive but will not be considered here. Benefits and penalties targeted at number of children with the aim of reducing fertility have been

rare. China is the clear exception. Under the One-Child policy, the reproductive freedom of couples was subordinated to the perceived needs of the state, with small financial benefits to couples pledging to have only one child and the threat of severe penalties to those having a second child. Vietnam, Singapore, and Iran are borderline exceptions. In some localities in Vietnam, fines or other penalties were imposed in pursuit of the national one-to-two child policy (Goodkind, 1995). Under Singapore's Stop at Two policy in the late 1980s, tax, housing, and education benefits were reduced for families with three or more children. In Iran, some birth-related benefits were reduced for higher order births. For years the Indian government flirted with a 'green card' scheme that would have entitled two-child families to educational and medical advantages but it was never implemented owing to lack of consensus. U.S. advisors are sometimes blamed for introducing financial carrots and sticks into population policies but this accusation is clearly invalid for China, Vietnam, and post-revolutionary Iran.

Payments targeted at contraceptive adoption were a common feature of programs in Asia. Ross and Isaacs (1988) identified six Asian countries that made payments to men and women undergoing sterilization and two that made smaller payments to women having IUDs. The official rationale was that such payments offset the costs of the contraceptive procedure, including direct travel costs and lost wages, and thus enlarged reproductive freedom. A darker interpretation was that these payments acted as an incentive for very poor individuals to sacrifice future childbearing for short-term benefits.

These concerns that payments linked to sterilization might jeopardize rather than enlarge reproductive freedom surfaced in Bangladesh, one of the poorest countries of the world and gave rise to the most detailed study of the subject (Cleland & Mauldin, 1991). The program in Bangladesh not only paid the equivalent of about 3 weeks' wages for an unskilled worker to men and women agreeing to be sterilized but also offered smaller sums to 'recruiters' and to surgeons. This arrangement gave rise to an army of self-employed unofficial

recruiters who were able to make a living by persuading individuals to undergo the procedure and accompanying them to the facility. The study concluded that the most harmful aspect of the scheme was the recruiter payment, because it flouted all principles of informed consent. For individuals, the conclusion was more nuanced. Sterilizations peaked in the lean inter-harvest months and did act as an incentive but no evidence was found that men or women sacrificed long-term childbearing desires for the lure of the immediate cash payment. A review also found that payments for contraceptive adoption usually have an impact on uptake (Heil et al., 2012).

Pakistan under the pro-Western leadership of Ayub Khan launched in the mid-1960s a crash program of IUD insertions, using a similar three-pronged payment protocol as in Bangladesh. For a time, the program attracted international plaudits but a national Impact Survey in 1969 revealed success to be illusory. Lack of medical backup for treatment of side effects made the method unpopular and the payment system spawned massive corruption. This is perhaps the clearest example of how poorly designed programs can be counter-productive.

Financial payments to individuals, conditional on acceptance of a method of contraception, is an important but transient phase in the Asian family planning story. The use of money stemmed from a belief that extra-ordinary measures were needed to promote contraception. Over time, it became apparent that financial schemes were unnecessary and today only some states in India retain a system of small client payments for sterilization.

## Targets

In common with health programs, many family planning programs set numerical targets. In the initial phase of Asian programs, these typically took the form of numbers of 'acceptors' of IUDs or sterilization. As use of oral contraceptives and, later on, injectables increased, measuring progress against targets by counting acceptors became less appropriate and couple-years of protection (CYPs) became the preferred metric. The CYP

is calculated by multiplying the quantity of each method distributed or provided to clients by a conversion factor to yield an estimate of the duration of contraceptive protection and then summed across methods. For instance, the insertion of each IUD or implant is credited with several CYPs whereas 15 cycles of pills are needed to provide one CYP. The advantage of CYPs is that they can be calculated from routine record keeping. Their disadvantage is that, particularly for pills and condoms, distribution figures may not reflect actual use and are also vulnerable to falsification. At national level, targets are also commonly set in terms of overall contraceptive prevalence or total fertility and measured at intervals of several years by representative surveys, such as DHSs and, more recently, by Performance Monitoring Assessments (PMAs).

Health targets do not attract controversy because improved health is universally and unquestionably valued. Fertility and family planning targets, on the other hand, have proved divisive because, unlike ill-health, the prevention of childbirth is a more ambivalent and contentious goal. Some commentators deplore the use of any numerical contraceptive or demographic target because of concerns that it might encourage coercive tactics to achieve them and lead to neglect of broader but equally important aims. Goodhart's law, that when a measure becomes a target it ceases to be a good measure, is always a danger but the greatest danger to the voluntary principle comes from method-specific targets, which are sometimes linked to staff incentives. The Indian program has attracted most criticism in this regard. For many years sterilization and IUD targets were set centrally but devolved down to state and district level and finally took the form of monthly quotas for individual staff. This strategy clearly jeopardizes freedom of choice. Formal method-specific targets are now rare.

## Provider Bias

Provider bias is often characterized as denial of an individual's preferred method, based on unjustified criteria, such as age, marital status, or parity.

The most comprehensive and recent evidence comes from large surveys of providers carried out in Uttar Pradesh, India, Kenya, Nigeria, and Senegal by the Urban Reproductive Health Initiative, summarized by Solo and Festin (2019). In all these settings, over half of providers imposed minimum age restrictions for certain methods and restrictions based on parity or marital status were also common. Clearly, young unmarried women suffer most. The problem of bias and stigma that limits access for adolescents generates huge concern, though, as mentioned earlier, condoms and emergency contraception, readily available from commercial outlets, will often be the best option.

Provider bias may also take the opposite form of directive counselling in favor of a particular method, either because of a provider's particular prejudice or because of pressure from managers, for instance to increase uptake of long-acting methods. The balance between encouraging and pressurizing women to adopt a particular method, particularly long-acting ones that make a woman dependent on staff for removal, will always be a delicate one. It is difficult to judge how common this type of bias is but a qualitative study in an unidentified African country documented many such instances, including undue pressure to continue using a method that was causing side effects (Senderowicz, 2019). The system, rather than individual provider, is often the origin of bias. In South Africa, for instance, the immediate postpartum provision of injectable contraception became a standard part of obstetric care, with little or no element of informed choice (Towriss et al., 2019).

### Extreme Pressure

The most severe forms of the spectrum of procedures that jeopardize or flout the voluntary principle are considered here. The most obvious and well-known examples stem from China's One-Child policy which explicitly subjugated individual freedom to societal goals. Women were put under great pressure to have an IUD after the first child and to be sterilized after the

second child in parts of the country where a second child was permitted, most commonly on the grounds that the first born was a daughter. There were also instances of forced abortion though it is uncertain how common this draconian enforcement was (Mosher, 2012).

The next best-known example of extreme pressure, amounting to outright physical coercion in some instances, occurred between June 1975 and March 1976 in India when Prime Minister Indira Gandhi ruled by emergency decree. Spearheaded by her younger son, Sanjay, a crash program of sterilization was launched, with intense pressure on local officials to achieve targets. The number of sterilizations performed rose three-fold over the previous year to 8.3 million. The state of Maharashtra even passed a compulsory sterilization bill though it was never implemented (Visaria & Ved, 2016). In such an intensely democratic country, these forceful tactics proved to be counter-productive. Mrs. Gandhi lost the next election and the annual number of sterilizations subsequently slumped to one million. It took several more years for the family planning program to regain credibility.

Something similar to India's experience during the emergency period occurred in Peru between 1996 and 2000. A health and family planning scheme, with a particular emphasis on female sterilization, was launched in rural areas and targeted at the indigenous population. It was implemented by mobile teams whose visits to communities were scheduled to coincide with health festivals. The number of sterilizations rose steeply but investigations suggested that many indigenous women were harassed or bribed into the procedure and informed consent was the exception (Battaglia & Pallares, 2020).

In Indonesia, the threat to volunteerism took the form of peer pressure on women to adopt contraception. The state family planning agency, BKKBN, in league with a powerful women's organization, PKK, orchestrated the creation of village groups, whose original purpose was to distribute contraceptives but whose mandate widened to monitor and increase contraceptive use. By 1996, over one million such groups had been formed, one for every 32 couples of reproductive

age, an astonishing achievement of national mobilization (Shiffman, 2002). In Bali, social control of reproductive behavior in the 1980 and 1990s was enhanced by public displays of the contraceptive status of each couple at community meetings.

These examples are concerns of the past though they did immense damage to the international family planning movement. Because of the growing adherence to reproductive rights, these forms of coercion are unlikely to re-occur in any organized, widespread way. However, instances of coercive procedures will continue, including refusal to remove contraceptive devices, because of over-zealous staff or pressure from above. Poor, ill-educated women will remain vulnerable. Another vulnerable group comprises women who have just given birth and may be in no condition to make an informed choice when offered immediate postpartum contraception.

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## Conclusion: Unfinished Business

A perfect contracepting society may be imagined. It would be one in which a range of methods is used. Unintended pregnancies are rare and stem largely from contraceptive failure rather than absence of use. Safe abortion is available in these instances. Bearing in mind that the concept of family planning embraces freedom to have children when desired, treatment is available for couples who have difficulties in conceiving or taking pregnancies to term. From the perspective of long-term sustainability of human activity on the planet, it could also be argued that fertility should not exceed two births per woman, thereby ensuring the end of the long era of population growth.

No society approaches this ideal. As discussed earlier, method-mix is highly skewed in many rich and poor countries alike, unintended pregnancies and abortions are common, and affordable infertility treatment is largely restricted to rich countries. However, progress towards the ideal is being made. Between 1990–1994 and 2010–2014, the unintended pregnancy rate per 1000 women fell by 30% in developed regions,

with a particularly steep decline in Eastern Europe in response to the introduction of effective methods following the disintegration of the Soviet Union. In poorer regions, the decline amounted to 16% (Bearak et al., 2018). Nevertheless, in 2010–2014, it was estimated that an annual global total 99 million unintended pregnancies occurred, accounting for 44% of all 227 million pregnancies. About 56% of all unintended pregnancies were terminated (Singh et al., 2017). In an apparent paradox, the proportion of all pregnancies that were unintended varied little between Northern America, Europe, Asia, and Africa, despite large differences in contraceptive use, though it was higher in Latin America. The reason concerns exposure to risk. When desired family sizes are small, couples must spend many more years trying to prevent undesired conceptions than in countries, such as those in Africa, where larger families are wanted. The persistence of unintended pregnancies, even in societies with high levels of contraceptive use, stems in part from defects of contraceptive methods. Some women find the side effects of hormonal methods unacceptable or dislike the idea of inducing major changes in physiology. Sterilization demands a finality of decision-making that is unsuitable for some. Pills and condoms require memory and discipline that are difficult to maintain for prolonged periods. Regrettably, no major advances in contraceptive technology are envisaged in the near future. The need for abortion as a backup to contraception will never disappear. Chapter 28: *The Role of Abortion in Population Policies* of this Handbook covers this topic (Crane & Maistrellis, [this volume](#)).

This brief consideration of unintended pregnancies should not be allowed to mask the huge, positive progress that has been achieved in Asia, Latin America, and North Africa in the past 70 years. In Asia and Latin America, the levels of current use of contraception and unmet need for contraception in 1970 among married women were similar in the range of 25–35%. By 2020, the level of current use had risen to 70% and unmet need had fallen to about 10%. Fertility in most countries is close to, or below, replacement

level. In North Africa unmet need also fell but remains higher than in the other two regions at 15%. However, these national estimates take no account of intra-country differences. Unmet need is often higher among disadvantaged sectors (Ewerling et al., 2018).

Sub-Saharan Africa lags behind other regions in reproductive modernization. Unmet need exceeds 20% in 26 out of 39 countries with recent evidence from DHSs, a level matched by only a handful of countries in other regions, such as Afghanistan, Haiti, Maldives, and Timor-Leste. Total fertility rates exceed four births per woman in most countries. Outside Africa, only Afghanistan and the Solomon Islands record such high fertility. Between 2020 and mid-century, the population of sub-Saharan Africa is projected to double, and growth in this region will account for half of global growth in population.

However, there are also positive signs. Low fertility has been recorded in the Republic of South Africa and surrounding states for many years and rapid change is now apparent in East Africa. Contraceptive use has risen sharply, not only in Ethiopia and Rwanda, with particularly strong programs, but also in Zambia, Malawi, and Uganda. A sub-regional divide is becoming wider with a much slower pace of change in West and Central Africa. In Nigeria, for instance, the percentage of married women using any method rose only from 13% to 17% between 2003 and 2018. In the Democratic Republic of the Congo (DRC), the second most populous nation in West or Central Africa, the level of reported use remained unchanged at 20% between 2007 and 2013–2014. In DRC, civil unrest has hampered the provision of contraceptive services and this problem is shared by Niger, Mali, Central African Republic, and Cameroon. But this factor is only a partial explanation. Nor can sub-regional differences in education or urbanization provide an answer.

Attitude to family size is a starting point in the search for an explanation. Though wider spacing, or postponement, of childbearing has played a more significant role in fertility decline in Africa than elsewhere (Timaues & Moultrie, 2020), a widespread desire to curtail childbearing to a

modest number is essential for the achievement of low fertility. This desire has been growing in East Africa. Among ten countries with a DHS since 2010, the percent of married women with four children who want no more ranges between 35–74%, with one exception (Comoros 22%). The same range is eight to 32% among the 19 countries in West or Central Africa that have conducted a recent DHS, with one exception (Ghana 37%). The reasons for the reluctance of women in West and Central Africa to embrace family size limitation remain unknown and a high priority for research. From a reproductive rights point of view, a persistent desire for large families presents no problem but the externalities of this choice, in terms of food security, environmental damage, and escape from poverty are likely to be severe. Though the international family planning movement has achieved a degree of success far beyond the expectations of many, the story of reproductive modernization is far from complete.

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## References

- Agarwal, S., Curtis, S. L., Angeles, G., Speizer, I. S., Singh, K., & Thomas, J. C. (2019). The impact of India's accredited social health activist (ASHA) program on the utilization of maternity services: A nationally representative longitudinal modelling study. *Human Resources for Health, 17*, 68.
- Ahmad, W. (1971). Field structures in family planning. *Studies in Family Planning, 2*(1), 6–13.
- Ali, M. M., & Cleland, J. (2018). Long term trends in behaviour to protect against adverse reproductive and sexual health outcomes among young single African women. *Reproductive Health, 15*, 136. <https://doi.org/10.1186/s12978-018-0576-6>
- Ali, M. M., Cleland, J., & Shah, I. H. (2012). *Causes and consequences of contraceptive discontinuation*. World Health Organization.
- Battaglia, M., & Pallares, N. (2020). Family planning and child health care: Effect of the Peruvian *Programa de Salud Reproductiva y Planificación Familiar*, 1996–2000. *Population and Development Review, 46*(1), 33–64.
- Bearak, J., Popinchalk, A., Alkema, L., & Sedgh, G. (2018). Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: Estimates from a Bayesian hierarchical model. *The Lancet Global Health, 6*, e380–e389.
- Bellows, B., Bulaya, C., Inambwae, S., Lissner, C. L., Ali, M., & Bajracharya, A. (2016). Family planning

- vouchers in low and middle income countries: A systematic review. *Studies in Family Planning*, 47(4), 357–370.
- Bernstein, S., Hardee, K., May, J. F., & Haslegrave, M. (this volume). Chapter 15: Population institutions and international population conferences. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Bertrand, J. T., Sullivan, T. M., Knowles, E. A., Zeeshan, M. F., & Shelton, J. D. (2014). Contraceptive method skew and shifts in method mix in low- and middle-income countries. *International Perspectives on Sexual and Reproductive Health*, 40, 144–153.
- Binka, F. M., Nazzar, A., & Phillips, J. F. (1995). The Navrongo community health and family planning project. *Studies in Family Planning*, 26(3), 121–139.
- Bongaarts, J. (2011). Can family planning programs reduce high desired family size in Sub-Saharan Africa? *International Perspectives on Sexual and Reproductive Health*, 37(4), 209–216.
- Bongaarts, J., Gragnolati, M., Ahmed, S. A., & Corker, J. (this volume). Chapter 5: Population, development, and policy. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Bruce, J. (1990). Fundamental elements of quality of care: A simple framework. *Studies in Family Planning*, 21(2), 61–91.
- Campbell, O. M. R., Benova, L., Macleod, D., Goodman, C., Footman, K., Pereira, A. L., & Lynch, C. A. (2015). Who, what, where: An analysis of private sector family planning provision in 57 low- and middle-income countries. *Tropical Medicine and International Health*, 20(12), 1639–1656.
- Casterline, J. B., & Sinding, S. W. (2000). Unmet need for family planning in developing countries and implications for population policy. *Population and Development Review*, 26(4), 691–723.
- Casterline, J. B., Sathar, Z. A., & Ul Haque, M. (2001). Obstacles to contraceptive use in Pakistan: A study in Punjab. *Studies in Family Planning*, 32(2), 95–110.
- Cavallaro, F. L., Benova, L., Owolabi, O. O., & Ali, M. (2019). A systematic review of the effectiveness of counselling strategies for modern contraceptive methods: What works and what doesn't. *BMJ Sexual and Reproductive Health*, 200377.
- Cleland, J. (2001a). The effects of improved survival on fertility: A reassessment. In R. A. Bulatao & J. B. Casterline (Eds.), *Global fertility transition. Population and development review* (27(Suppl.)) (pp. 60–92).
- Cleland, J. (2001b). Potatoes and pills: An overview of innovation-diffusion contributions to explanations of fertility decline. In J. B. Casterline (Ed.), *Diffusion processes and fertility decline* (pp. 39–65). National Academy Press.
- Cleland, J., & Mauldin, W. P. (1991). The promotion of family planning by financial payments: The case of Bangladesh. *Studies in Family Planning*, 22(1), 1–18.
- Cleland, J., Shah, I. H., & Daniele, M. (2015). Interventions to improve postpartum family planning in low- and middle-income countries: Program implications and research priorities. *Studies in Family Planning*, 46(4), 423–441.
- Coale, A. J., & Hoover, E. M. (1958). *Population growth and economic development in low-income countries*. Princeton University Press.
- Crane, B., & Maistrellis, E. (this volume). Chapter 28: The role of abortion in population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Desrochers, P., & Hoffbauer, C. (2009). The post war intellectual roots of the population bomb, Fairfield Osborn's "our plundered planet" and William Vogt's "road to survival" in retrospect. *The Electronic Journal of Sustainable Development*, 9(3).
- Douglas-Durham, E., Blanchard, K., & Higgins, S. (2015). *Contraceptive stockouts: A review of the published and grey literature*. Reproductive Health Supplies Coalition.
- Douthwaite, M., & Ward, P. (2005). Increasing contraceptive use in rural Pakistan: An evaluation of the lady health worker programme. *Health Policy and Planning*, 20(2), 117–123.
- Easterlin, R. A. (1975). An economic framework for fertility analysis. *Studies in Family Planning*, 6(3), 54–63.
- Elewonibi, B., Sato, R., Manongi, R., Msuya, S., Shah, I., & Canning, D. (2020). The distance-quality trade-off in women's choice of family planning provider in North Eastern Tanzania. *BMJ Global Health*, 5, e002149.
- Ewerling, F., Victora, C. G., Raj, A., Coll, C. V. N., Hellwig, F., & Barros, A. J. D. (2018). Demand for family planning satisfied with modern methods among sexually active women in low- and middle-income countries: Who is lagging behind? *Reproductive Health*, 15, 42.
- Freedman, R., & Takeshita, J. H. (1969). *Family planning in Taiwan: An experiment in social change*. Princeton University Press.
- Gillian, E. (2010). *MSI mobile outreach services: Retrospective evaluations from Ethiopia, Myanmar, Pakistan, Sierra Leone and Viet Nam*. Marie Stopes International.
- Goodkind, D. M. (1995). Vietnam's one or two child policy in action. *Population and Development Review*, 21(1), 85–111.
- Gueye, A., Speizer, I. S., Coroon, M., & Okigbo, C. C. (2015). Belief in family planning myths at individual and community levels and modern contraceptive use in urban Africa. *International Perspectives on Sexual and Reproductive Health*, 41(4), 191–199.
- Haberlen, S. A., Narasimhan, M., Beres, L. K., & Kennedy, C. (2017). Integration of family planning services into HIV care and treatment services: A systematic review. *Studies in Family Planning*, 48(2), 153–177.

- Halpern, V., Grimes, D. A., Lopez, L., & Gallo, M. F. (2006). Strategies to improve adherence and acceptability of hormonal methods of contraception. *Cochrane Database Systematic Reviews*, 1, CD004317.
- Hardee, K., Kumar, I., Newman, K., Bakamjian, L., Harris, S., Rodriguez, M., & Brown, W. (2014). Voluntary, human rights-based family planning: A conceptual framework. *Studies in Family Planning*, 45(1), 1–18.
- Hatti, N. (1977). Impact of assistance under P. L. 480 on Indian economy 1956–1970. *Economy and History*, 20(1), 23–40.
- Heil, S. H., Gaalema, D. E., & Herrmann, E. S. (2012). Incentives to promote family planning. *Preventive Medicine*, 55(Suppl), S106–S112.
- Herrin, A. N. (2007). Development of the Philippines' family planning program. In W. C. Robinson & J. A. Ross (Eds.), *The global family planning revolution: Three decades of population policies and programs* (pp. 277–297). World Bank Group.
- Jain, A. K. (2018). A new composite index to measure national-level quality of family planning programs. *International Perspectives on Sexual and Reproductive Health*, 44(2), 63–72.
- Jain, A. K., Obare, F., RamaRao, S., & Askew, I. (2013). Reducing unmet need by supporting women with met need. *International Perspectives on Sexual and Reproductive Health*, 29(3), 133–141.
- Khan, A. (1996). Policy-making in Pakistan's population programme. *Health Policy and Planning*, 11(1), 30–51.
- Koenig, M. A., & Khan, M. E. (1999). *Improving the quality of care in India's family welfare programme*. Population Council.
- Kuhlmann, A. S., Gavin, L., & Galavotti, C. (2010). The integration of family planning with other health services: A literature review. *International Perspectives on Sexual and Reproductive Health*, 36(4), 189–196.
- Lightbourne, R. A. (1987). Reproductive preferences and behaviour. In J. Cleland & C. Scott (Eds.), *The world fertility survey: An assessment* (pp. 838–861). Oxford University Press.
- Mauldin, W. P. (1965). Fertility studies: Knowledge, attitude, and practice. *Studies in Family Planning*, 1(7), 1–10.
- Medhanyie, A., Spigt, M., Kifle, Y., Schaay, N., Sanders, D., Blanco, R., GeertJan, D., & Berhane, Y. (2012). The role of health extension workers in improving utilization of maternal health services in rural areas of Ethiopia: A cross sectional study. *BMC Health Services Research*, 12, 352.
- Moreau, C., Bouyer, J., Bajos, N., Rodriguez, G., & Trussell, J. (2009). Frequency of discontinuation of contraceptive use: Results from a French population-based cohort. *Human Reproduction*, 24(6), 1387–1392.
- Mosher, S. W. (2012). China's one-child policy itself leads to forced abortion. *The Lancet*, 380(9853), 1558.
- Muanda, M., Ndongo, P. G., Taub, L. D., & Bertrand, J. J. (2016). Barriers to modern contraceptive use in Kinshasa, DRC. *PLoS One*, 11(12).
- Phillips, J. F., & Hossain, M. B. (2003). The impact of household delivery of family planning services on women's status in Bangladesh. *International Family Planning Perspectives*, 29(3), 138–145.
- Phillips, J. F., Greene, W. L., & Jackson, E. F. (1999). *Lessons from community-based distribution of family planning in Africa* (Policy Research Division Working Paper No. 121). Population Council.
- Potter, J. E. (1999). The persistence of outmoded contraceptive regimes: The cases of Mexico and Brazil. *Population and Development Review*, 25(1), 703–739.
- Radovich, E., Dennis, M. L., Wong, K. L. M., Ali, M., Lynch, C. A., Cleland, J., et al. (2017). Who meets the contraceptive needs of young women in sub-Saharan Africa? *Journal of Adolescent Health*, 62(3), 273–280.
- Robinson, R. S. (this volume). Chapter 20: Linkages between family planning and HIV/AIDS programs. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Ross, J. A., & Isaacs, S. L. (1988). Costs, payments, and incentives in family planning programs: A review for developing countries. *Studies in Family Planning*, 19(5), 270–283.
- Roudi-Fahimi, F., & El-Adawy, M. (2005, July 18–23). *Men and family planning in Iran*. Paper prepared for the XXVth international population conference, Tours, France.
- Rutenberg, N., & Watkins, S. C. (1997). The buzz outside the clinics: Conversations and contraception in Kenya. *Studies in Family Planning*, 28(4), 290–307.
- Scott, V. K., Gottschalk, L. B., Wright, K. Q., Twose, C., Bohren, M. A., Schmitt, M. E., & Ortayli, N. (2015). Community health workers' provision of family planning services in low- and middle-income countries: A systematic review of effectiveness. *Studies in Family Planning*, 46(3), 241–261.
- Senderowicz, L. (2019). 'I was obliged to accept': A qualitative exploration of contraceptive coercion. *Social Science & Medicine*, 239, 112531.
- Sheff, M. C., Jackson, E. F., Kante, A. M., Rusibamayila, A., & Phillips, J. F. (2019). The impact of adding community-based distribution of oral contraceptives and condoms to a cluster randomized primary health care intervention in rural Tanzania. *Reproductive Health*, 16, 181.
- Shiffman, J. (2002). The construction of community participation: Village family planning groups and the Indonesian state. *Social Science & Medicine*, 54, 1199–1214.
- Shiffman, J. (2004). Political management in the Indonesian family planning program. *International Perspectives on Family Planning*, 30(1), 27–33.



- Simmonds, R., Baqee, L., Koenig, M. A., & Philipps, J. F. (1988). Beyond supply: The importance of female family planning workers in rural Bangladesh. *Studies in Family Planning*, 19(1), 29–38.
- Singh, S., Remez, L., Sedgh, G., Kwok, L., & Onda, T. (2017). *Abortion worldwide 2017: Uneven progress and unequal access*. Guttmacher.
- Solo, J., & Festin, M. (2019). Provider bias in family planning services: A review of its meaning and manifestations. *Global Health: Science and Practice*, 7(3), 371–385.
- Stash, S. (1999). Explanations for unmet need for contraception in Chitwan, Nepal. *Studies in Family Planning*, 30(4), 267–287.
- Staveteig, S. (2017). Fear, opposition, ambivalence and omission: Results from a follow-up study on unmet need in Ghana. *PLoS One*, 12(7).
- Symonds, R., & Carder, M. (1973). *The UN and the population question, 1945–1970*. McGraw-Hill.
- Tarsilla, M. (this volume). Chapter 24: Measuring the effectiveness, efficiency, and impact of population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Timaeus, I. M., & Moultrie, T. A. (2020). Pathways to low fertility: 50 years of limitation, curtailment, and postponement of childbearing. *Demography*, 57(1), 267–296.
- Towriss, C. A., Phillips, T. K., Brittain, K., Zerbe, A., Abrams, E. J., & Myer, L. (2019). The injection or the injection? Restricted contraceptive choices among women living with HIV. *Sexual and Reproductive Health Matters*, 27(1), 215–227.
- Tumlinson, K., Gichane, M. W., & Curtis, S. L. (2020). “If big fish are doing it then why not me down here?” Informal fee payments and reproductive health care provider motivation in Kenya. *Studies in Family Planning*, 51(1), 33–50.
- USAID. (2018). *High Impact Practices in Family Planning (HIPs). Social franchising: Improving quality and expanding contraceptive choice in the private sector*. U.S. Agency for International Development.
- Visaria, L., & Ved, R. R. (2016). *India’s family planning programme: Policies, practices and challenges*. Routledge.
- Warwick, D. P. (1986). The Indonesian family planning program: Government influence and client choice. *Population and Development Review*, 12(3), 453–490.
- Weinberger, M., Williamson, J., Stover, J., & Sonneveldt, E. (2019). Using evidence to drive impact: Developing the FP goals impact matrix. *Studies in Family Planning*, 50(4), 289–316.
- Weitzke, F. B. (2020). Poverty, inequality, and fertility: The contribution of demographic change to global poverty reduction. *Population and Development Review*, 46(1), 65–99.
- Westoff, C. F. (1978). The unmet need for birth control in five Asian countries. *Family Planning Perspectives*, 10(3), 173–181.
- WHO. (2003). *Adherence to long-term therapies: Evidence for action*. World Health Organization.



# The Role of Abortion in Population Policies

# 28

Barbara B. Crane and Emily A. Maistrellis

## Introduction

Actions to terminate pregnancies have been common throughout human history and across every culture. At the same time, most cultures view the decision to end a pregnancy as a matter of profound moral significance, especially later in gestation. In many settings, the procedure is highly stigmatized, causing suffering for women, their families, and healthcare providers. In almost every setting, abortion is subject to national or local policies, many of which criminalize the procedure, and some of which ban it altogether. Nevertheless, the decision to have an abortion is widely recognized explicitly as a human rights imperative for women and for individuals with other gender identities who become pregnant. A person's ability to terminate a pregnancy safely is integral to other basic human rights including the rights to life, health, bodily autonomy, privacy, non-discrimination, and more (Fine et al., 2017). While laws and policies, and the discussion in this chapter, generally speak of abortion as an experience of women, individuals with other gender identities can become pregnant and may seek abortions.

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Discussing abortion in the context of population policy is challenging. On the one hand, coercive anti-natalist population policies have been introduced that directly or indirectly force women to have abortions. China implemented a One-Child policy in 1979, which was greatly eased in recent years, although coercion is reported by authorities in some areas. In Vietnam, the two-child policy promulgated in 1988 put strong pressure on women to terminate pregnancies, a policy that was somewhat relaxed in 2017. At the other extreme, as was the case of Romania, a pro-natalist population policy severely restricted abortions from 1966 to 1989, resulting in a decline in safe abortions and a dramatic increase in maternal mortality. In most countries, however, demographic considerations play little or no role in shaping abortion policies. Still, a premise of this chapter is that wherever population policies are formulated, voluntary access to abortion should be considered as an integral component along with other policy interventions intended to have demographic impacts and benefit individuals, families, communities, health systems, and society at large.

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## Global Abortion Trends

Induced abortion is a frequent experience, as women turn to abortion for about one out of four pregnancies worldwide (Sedgh et al., 2016: 263). From 2015 to 2019, 73.3 million abortions

occurred on average each year, which translates to a global abortion rate of 39 per 1000 women between the ages of 15 and 49 (Bearak et al., 2020: 1157). When considered cumulatively over women's reproductive years, this rate implies that around the world, hundreds of women per thousand experience an abortion at some point in their lives, although rates vary across regions and countries.

Notably, the legal status of abortion does not determine abortion rates, which are similar between countries where abortion is restricted and those where the procedure is legal on request or on broad socioeconomic grounds (see Fig. 28.1). Furthermore, in countries where abortion is restricted, unintended pregnancies occur more often, as there is less access to effective contraception along with other factors. The proportion of unintended pregnancies that end in abortion is greater than in countries where abortion is broadly legal. This percentage has actually increased in restrictive countries, from 36% in 1990–1994 to 50% in 2015–2019, revealing women's growing reliance on the informal health sector, and on clandestine methods, to obtain abortions (Bearak et al., 2020: 1157).

The proportion of unsafe abortions increases in accordance with the severity of countries' abortion restrictions (Singh et al., 2018) (see Fig. 28.2). The World Health Organization (WHO) classifies abortion as safe when performed by someone who possesses the appropriate skills and uses a method recommended for that particular stage of pregnancy (WHO, 2020a). Abortion is one of the safest

medical procedures when WHO clinical guidance is followed. An estimated 25 million abortions each year are performed in unsafe conditions, 97% of which occur in developing countries (Ganatra et al., 2017: 2373; Sully et al., 2019: 4). Left untreated, complications of unsafe abortion can result in significant morbidity, including haemorrhage and sepsis, as well as death. In sum, unsafe abortion is a serious and preventable public health issue.

Despite these daunting figures, global rates and numbers of abortion-related injuries, illnesses, and deaths have declined markedly in the last 30 years. While in 1990 an estimated 69,000 deaths occurred, deaths were estimated at close to 23,000 in 2010 (Say et al., 2014: 323; WHO, 2011: 27). This change was made possible by liberalization of abortion laws and policies; improvements in access to safe abortion care, post-abortion care (PAC), and modern contraception; increased availability of clinical guidelines allowing among other things task-sharing among a range of health professionals; and safer abortion technologies, including vacuum aspiration and pharmaceutical methods. Innovations in abortion technologies play a key role, with increasing evidence that women can safely undertake an early abortion with medications that do not require the presence of a clinician (Chong et al., 2021).

Evidence-based policy changes, including known public health interventions as well as removal of most of the prevailing regulatory restrictions associated with abortion, could

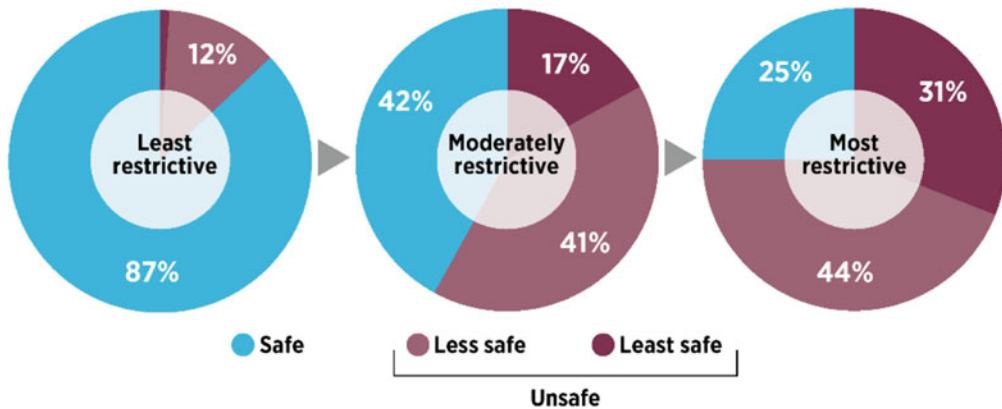


**Fig. 28.1** Guttmacher Institute, Abortion occurs worldwide where it is broadly legal and where it is restricted, Infographic, New York: Guttmacher Institute, 2020,

<https://www.guttmacher.org/infographic/2020/abortion-occurs-worldwide-where-it-broadly-legal-and-where-it-restricted>

## GUTTMACHER INSTITUTE

### 1 The proportion of abortions that are unsafe is much higher in countries where laws are more restrictive



Note: Abortion is safe when done by a trained person using WHO-recommended methods, less safe when only one of those conditions is met and least safe when neither is met. Source: WHO and Guttmacher Institute.

gu.tt/GlobalAbortion

**Fig. 28.2** Guttmacher Institute, Disparities in safety of abortions across countries with varying legal restrictions, Infographic, New York: Guttmacher Institute, 2018,

<https://www.guttmacher.org/infographic/2018/disparities-safety-abortions-across-countries-varying-legal-restriction>

prevent nearly all unsafe abortions and the morbidity and mortality resulting from them. Critical challenges remain, however, to reduce abortion stigma and also to reach those most at risk – including women who are poor or young; who have disabilities; or who live in underserved settings, including rural areas and refugee environments.

## Abortion, Fertility, and Measurement

Both policymakers and demographers have sought to understand the role of induced abortion in determining fertility rates in a society. Demographers recognize induced abortion as one of the main proximate determinants of fertility, along with contraceptive use and effectiveness, the proportion of females married or in sexual unions, and the duration of postpartum insusceptibility (Bongaarts, 1982: 179; Johnston & Hill, 1996). As a country undergoes a

demographic transition from high levels of fertility and mortality to low levels, individual motivations to avoid unwanted births and thereby reduce fertility may drive up use of contraception and reliance on abortion simultaneously (Marston & Cleland, 2003; see also Chap. 27: *The Contraceptive Revolution* of this *Handbook* [Cleland, this volume]). Abortions then decline as the transition enters the final stage, and as widespread use of effective contraception reliably prevents unwanted pregnancies. However, because in all societies, contraceptive non-use for various reasons or failures of contraceptives are inevitable, unintended pregnancies will always occur, as will the need for access to safe abortion.

While many countries going through the demographic transition may broadly experience the trends described here, the reality is usually much more complicated and may be influenced by government policies and programs, especially when the intention is to reduce fertility (Johnston & Hill, 1996). In South Korea, for example, the

government pursued an anti-natalist population policy from the 1960s to the 1980s, implementing a national family planning program that included access to abortion. As a result, use of induced abortion significantly accelerated reduction of fertility in South Korea (Noble & Potts, 1996). By contrast, neither South Korea's pursuit of a pro-natalist policy after 2005 nor such policies in other countries have had much impact on preventing abortions; rather, such policies result in women travelling elsewhere to obtain abortions or undergoing clandestine, often unsafe, abortions (Kim, 2019).

Accurate measurement of abortion and its consequences is essential for understanding the effect of abortion on fertility; informing service delivery efforts to prevent unintended pregnancy; calculating the health systems costs of abortion-related care; developing reliable estimates of maternal mortality and morbidity; assessing the impacts of changes in abortion policies; and informing advocacy efforts. Research remains challenging, however. Even in countries with relatively liberal policies, criminalization and persistent stigma makes underreporting common when surveying women. Surveys of service providers are equally problematic, as stigma along with fear of criminal penalty among those operating beyond the law may keep them from disclosing their abortion practice or reporting accurate numbers. Even where national statistics on abortion services exist, they do not include information about care sought outside of the formal health sector and may not include data from private and NGO facilities.

Researchers have developed techniques for working around these challenges in order to produce more accurate estimates. These indirect methods rely on a range of data sources including hospital and clinic records; surveys of abortion providers and other experts; and qualitative interviews, both with women and with third parties who are asked about the abortions of others within their social networks. Data from healthcare facilities on treatment of incomplete and septic abortions are less politicized and more available and are therefore the backbone of the most widely used indirect method – the Abortion Incidence Complications Method (AICM)

(Singh et al., 2019). Developed by the Guttmacher Institute in the 1990s, the AICM has been used in over 20 countries. Application of the method continues to evolve in changing policy contexts, such as those where unsafe abortions are common despite legal permissibility, or where use of medical abortion outside of health facilities is rising.

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## Innovations in Abortion Technologies

Trends in abortion advocacy and policy making over the last 60 years have been influenced by technological advancements. Vacuum aspiration for first trimester abortion and for treatment following unsafe abortion or miscarriage emerged in the 1960s and 1970s as a game changer for physicians and women. It obviated the need for the more risky and expensive surgical procedure that had been the norm for well over a century – dilation and curettage (D and C) – and that required clinical infrastructure, a large number of instruments, and pain medications or even general anaesthesia. Electric vacuum aspiration was pioneered in Eastern Europe as Socialist governments eased abortion restrictions. Together with physician-activists who were well-acquainted with the dangers of unsafe abortion, psychologist Harvey Karman (inventor of the “Karman cannula”) further refined the technology, which, when properly used, virtually eliminates the risks of uterine perforation or other complications typically associated with D and C.

In the early 1970s, the availability of a plastic syringe to create a vacuum, as a substitute for the electrical pump, transformed the vacuum aspiration method. Manual vacuum aspiration (MVA), as it is called, can be used for early abortion in resource-poor settings where electricity is not reliable or readily available, and it can be performed by nurses, midwives, and other mid-level providers. As a technology that was less medicalized, safer, and more cost-effective, MVA prepared the way for policies and programs that would offer expanded access to women, including in remote rural locations. Notably, the same qualities that made MVA appealing to

proponents of fertility control in developing countries in the early 1970s (safe, low-tech, and cheap to produce) were also appealing later to advocates for women's reproductive health and rights. The United States Agency for International Development initially funded the development of MVA with the aim of seeing mass production of MVA kits to distribute globally as part of U.-S. support for family planning programs, but had to cease this role in 1973 when Congress enacted a prohibition on abortion funding in U.S. foreign aid.

Increasingly, pharmaceutical methods, known as medical abortion, are becoming the methods preferred by providers and women where the drugs are available. The "abortion pill" (first known as RU-486, and subsequently mifepristone) was developed in France in 1980 and came into use in 1987, with gradually increasing uptake elsewhere in Europe and ultimately approval in the United States in 1993, despite anti-abortion opposition. Mifepristone requires accompanying use of misoprostol to ensure a complete abortion; and where mifepristone is not available, misoprostol alone can be used. Despite the great promise of mifepristone, there have been challenges in establishing production, getting it registered in many developing countries, and creating distribution systems and funding. Misoprostol is more widely available because of its low cost and its role in preventing postpartum hemorrhage among other uses, although it is not always of adequate quality, pointing to the need for good management by drug supply systems.

Evidence shows that women can undertake early abortions themselves safely and successfully through the use of medical abortion methods, without the in-person presence of a health professional (Gambir et al., 2020; Raymond et al., 2020). Medical abortion may be accomplished with the help of an online consultation with a trained provider ("tele-medicine"), or it may be done entirely by the woman herself as a "self-managed abortion" (Donovan, 2018). However, the legal framing of many abortion laws does not allow for these de-medicalized approaches. Despite the public health evidence

base, many countries maintain laws that only enable access to abortion in a clinical setting, and/or criminalize those who procure or help others to procure self-managed abortions (Berro Pizzarossa & Skuster, 2021). Laws and policies that decriminalize medical and self-managed abortion, approve the required drugs, allow tele-medicine for medical abortion, and in other ways support these options could greatly increase the availability and affordability of abortion services, particularly in underserved areas.

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### The Harms of Policies Restricting Abortion Access

In 2017, 42% of women of reproductive age lived in the 125 countries that prohibited abortion altogether or permitted it only to save a woman's life or protect her health (Singh et al., 2018: 4). Restrictive policies that limit access to safe abortion cause women to seek clandestine and often unsafe abortions, leading to an estimated 23,000 deaths each year and millions of injuries and complications (Say et al., 2014: 323). Poor and marginalized women and girls are most seriously affected, especially in settings where there is little or no public sector funding for abortion. Young girls with unintended pregnancies are often forced to drop out of school.

In addition to their health and social consequences, restrictive abortion laws and policies are financially costly to already overburdened health systems and to women and their families. Globally, the yearly cost of treating preventable complications of unsafe abortion was estimated for 2006 at USD 553 million (WHO, 2020a). Furthermore, studies show that postabortion care to treat complications costs much more to individuals than safe abortion care (Hu et al., 2010: 87). Access to safe and high-quality abortion is therefore regarded as an issue of social justice as well as a matter of public health and human rights.

Laws and policies concerning abortion may have the effect of either erecting or removing a range of potential barriers to women's access. These include policies concerning:

- The gestation period, usually with tighter restrictions for later pregnancies;
- The circumstances of the unwanted pregnancy, as some laws may allow abortion on request while others allow abortion only for selected indications such as for pregnancies due to rape or incest, or those believed to endanger the life of the woman;
- The procedural requirements, including who may make the decision; whether authorization from one or more physicians, spouses, parents, judges, hospital committees, or other parties is required; waiting periods following a request for an abortion; and counseling requirements;
- The health professionals permitted to offer abortion care, specifically, whether midwives, nurses, and other non-specialist practitioners are allowed, and whether and under what conditions service providers are permitted to invoke conscientious objection;
- Where abortions can be provided; as well as the standards that facilities must meet in order to be allowed to offer abortions;
- The procedures and technologies that may be used – medications, medical devices, and other equipment – and the requirements for their approval, registration, and distribution through both the public and private sector;
- The socioeconomic situation of the pregnant person; and whether financial support is available for persons with low-income or through health insurance schemes; and
- Whether self-managed abortion is permitted.

Abortion policies may be found in many places, with varying degrees of clarity and enforceability. They include but are not limited to constitutions, criminal codes, civil codes, family laws, court decisions, medical ethics codes, health provider laws, and clinical guidelines; and may vary across subnational jurisdictions within countries, especially in federal systems where states or provinces may have jurisdiction over healthcare, including abortion. Notably, many restrictive abortion laws in Africa, Asia, and Latin America originated from the civil,

criminal, and common law codes of former colonial rulers.

Since 2017, the WHO has maintained a “Global Abortion Policies Database” (GAPD) which captures the variety of legal requirements, criminal penalties, and health regulations – and the source documents that include them – that govern abortion care in most UN and WHO member states (Johnson et al., 2018). The GAPD identifies regulatory requirements affecting abortion access (e.g., provider refusal, third party authorization, facility and service provider guidelines for induced abortion, etc.) along with the legal indications for abortion, the United Nations Treaty Monitoring Bodies’ concluding observations on abortion, and national socio-demographic indicators. Analyses of the information included in the GAPD reveal many contradictions and ambiguities that exist among and within countries’ abortion policies. The GAPD is therefore an essential point of departure for understanding how abortion laws and policies affect public health, human rights, and the lived experiences of women and service providers.

The harmful impacts of restrictive policies are felt by women who are denied abortions and are thus forced to continue with pregnancy. While births in these circumstances may well become wanted, a robust body of evidence from the United States known as the Turnaway Study demonstrates that being denied an abortion often has harmful effects on the health and well-being of women, children, and families. This quasi-experimental longitudinal study found that, compared to women who obtain abortions, women denied abortions have worse physical health outcomes, experience more violence from the partner involved in the pregnancy, and are more likely to live in poverty (Greene-Foster, 2020). Furthermore, decades of research reveal that negative consequences of abortion denial are inter-generational. A longitudinal study of women denied abortion in former Czechoslovakia found that their children faced worse mental health and

socioeconomic outcomes into adulthood, compared to children born to pair-matched women who did not seek abortions (David, 2006).

Restrictive abortion policies may also be exported. Just as former colonial powers bear responsibility for the installation of abortion laws in many developing countries, the United States wields its influence as a powerful global health donor to inflict abortion restrictions upon foreign aid recipients. Since 1973, the Helms Amendment to the U.S. Foreign Assistance Act has prohibited the use of U.S. foreign aid to pay for abortion as a method of family planning – meaning in cases other than rape, incest, or to save the life or health of the woman – irrespective of the abortion laws in recipient countries. However, the Helms Amendment has effectively banned all support for safe abortion with U.S. foreign aid funds due to over-interpretation of the circumstances to which it applies. Additional laws forbid the use of U.S. foreign assistance for research on abortion and for lobbying for or against changing abortion laws.

Perhaps the most well-known abortion restriction on U.S. foreign assistance is the Mexico City Policy, also known as the “global gag rule”, which has been enacted as an executive order by every Republican president and repealed by every Democratic president since Ronald Reagan first announced it in 1984. In its most recent iteration under the Trump Administration, the policy prevented foreign NGO recipients of U.S. Government global health assistance from using any *other* funds to provide, refer for, or counsel on abortion as a method of family planning, or to lobby for the liberalization of national abortion laws. By ending U.S. funding for effective providers of family planning services, the policy actually increased abortions in some settings (Brooks et al., 2019). Because the “gag rule” policy comes and goes as the U.S. presidential administration changes, it creates considerable uncertainty and confusion for NGOs, some of whom deliberately choose not to work on abortion in order to avoid the organizational burden and financial toll associated with having to switch their programming on and off at the whim of the U.S. government.

## Abortion Policy at the Global Level

### Abortion and the Global Health and Development Policy Agenda

As the global movement to address rapid population growth through national family planning programs gained momentum from the 1950s through the 1970s, leaders often preferred to distance themselves from supporting abortion. Mainstream proponents of voluntary family planning, though convinced about the value of individuals and couples being able to regulate fertility, hesitated about supporting safe abortion access. Many felt it was difficult enough just to gain acceptance for modern contraceptive use, which was itself stigmatized. In order to further the cause of family planning, they often inadvertently reinforced abortion stigma by promoting prevention of abortion as a primary rationale for expanding access to contraception. In general, however, abortion as a matter of women’s reproductive health and rights was scarcely addressed at the international level during those early years (Crane, 1994).

A critical turning point for abortion policy was the International Conference on Population and Development (ICPD) held in Cairo under United Nations auspices in 1994, at which the governments of the world adopted by consensus a far-reaching *Programme of Action*. The ICPD produced a new paradigm for comprehensive population policies that prepared the way for global recognition of sexual and reproductive health and rights, and for access to abortion as a part of these rights. At ICPD and ever since, abortion has nevertheless remained one of the most hotly contested issues in the context of population and development policies at the global level. Governments could only agree that where abortion is legal, it should be safe, but could not agree on a call for reform of abortion laws.

It was therefore considered a major breakthrough when 5 years after the Cairo Conference, in a Special Session of the UN General Assembly, governments at least agreed on concrete



recommendations for implementation of abortion laws already in place: that “in circumstances where abortion is not against the law, health systems should train and equip health-service providers and should take other measures to ensure that such abortion is safe and accessible” (United Nations, 1999). Despite this very qualified wording, the language of this recommendation provided an opening for increased funding for abortion services by private foundations and European donor governments, joined more recently by Canada. The recommendation also prepared the way for new policy debates on abortion and progress toward more liberal policies in the years that followed as well as for development of guidance by the WHO (2012).

Since 1999, policies have been adopted in many settings to expand access to safe abortion through easing abortion restrictions and strengthening health systems support, mainly through the efforts of grassroots feminism, health professional associations and other civil society groups, drawing energy from the continued growth of a transnational movement for women’s rights and gender equality. Several international non-governmental organizations – notably Ipas, the International Planned Parenthood Federation, and MSI Reproductive Choices (formerly Marie Stopes International) – have played critical roles in supporting national and local-level implementation of abortion policies. The World Health Organization, the Guttmacher Institute, Ipas, the Population Council, Ibis Reproductive Health, Gynuity Health Projects, the African Population and Health Research Center, and others have facilitated essential research in support of policy and program reforms. After 1992, the United States foreign aid program was able to support treatment of unsafe abortion complications, known as “postabortion care (PAC),” even under U.S. legislative restrictions on abortion as well as under restrictive laws in recipient countries (Corbett & Turner, 2003). PAC interventions in a number of countries actually helped to raise awareness of unsafe abortion, train healthcare providers in the clinical treatment of incomplete abortions, support postabortion contraceptive services, and lay the groundwork for later abortion law reform.

Global professional organizations – the International Federation of Gynecology and Obstetrics (FIGO) and the International Confederation of Midwives (ICM) – have adopted positions and guidelines that affirm the importance of trained and committed providers in enabling women’s access to safe abortion (Faundes et al., 2020). Other organizations have played roles through their advocacy and programmatic efforts in various countries, such as the global arm of Planned Parenthood Federation of America, the Center for Reproductive Rights, the International Women’s Health Coalition, Catholics for Choice, Pathfinder International, and the Population Reference Bureau. Amnesty International, Human Rights Watch, and other human rights organizations have also incorporated reproductive rights in their programming, including access to safe abortion. Documentation of global progress and setbacks on abortion policy reforms and access has been provided by many of the organizations listed above and through the journal, *Reproductive Health Matters* (now on-line as an open-access journal, *Sexual and Reproductive Health Matters*), and the website of the International Campaign for Women’s Right to Safe Abortion.

A pivotal event in 2000 was the global agreement on eight Millennium Development Goals, setting a new development agenda through 2015. Although “reproductive health” was noticeably absent, Goal 5 called for reduction of the maternal mortality ratio by three-quarters between 1990 and 2015. It took years of complex lobbying by civil society groups, European donors, the UN Millennium Project housed at Columbia University, and the associated Task Force on Child Health and Maternal Health, before an additional target regarding reproductive health equity was added under “MDG 5” in 2007. However, the indicators used to measure progress toward that target did not include measures of safe or unsafe abortion, or abortion-related care. Nevertheless, MDG 5, together with increasing global recognition of unsafe abortion as a leading cause of maternal mortality, gave added impetus to abortion advocacy and services in many countries. A new global agenda adopted by governments in 2015, the Sustainable Development Goals (SDGs) includes clear commitments to sexual

and reproductive health and reproductive rights. Abortion is still not explicitly mentioned, however. The absence of reference to abortion in the SDG framework creates a normative gap for countries and donors, especially with regard to Universal Health Coverage. The risk is that abortion will continue to be largely excluded from health benefits packages, despite the positions of the WHO and other international bodies such as the Guttmacher-Lancet Commission that safe, voluntary abortion should be available to all women regardless of their ability to pay (Starrs et al., 2018; WHO, 2012).

Despite the tenuous status of abortion in the global health and development community, critical steps have been taken. Significantly, based on the mandate from the UN Special Session in 1999, the World Health Organization issued guidance for provision of safe abortion in national health systems for the first time in 2003. Since then, WHO has issued updated guidance documents reflecting clinical as well as public health information, framing abortion as a health and human rights imperative (WHO, 2012, 2020a).

Other global bodies, notably the United Nations Human Rights Committee and the Office of the High Commissioner for Human Rights have also provided normative guidance (United Nations, Office of the High Commissioner for Human Rights, 2014). In 2011, the United Nations Special Rapporteur on the Right to Health, Anand Grover, called for decriminalization of abortion, affirming that laws penalizing women for having abortions are a violation of human rights (United Nations Secretary-General, 2011). Intergovernmental bodies monitoring binding conventions and treaties, such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), have added substantially to the corpus of international legal guidance on abortion (Johnson et al., 2018). Such guidance has consistently recognized that denying access to safe abortion under most circumstances is a “form of gender-based violence” and a violation of human rights.

An important development in the past decade is the engagement of global humanitarian

organizations – such as CARE, the International Rescue Committee, Médecins sans Frontières and the Interagency Working Group on Reproductive Health in Crises – which are increasingly incorporating abortion-related care into their work in conflict-affected and other settings where they provide relief services. Despite the evidence of widespread sexual violence and use of rape as a weapon of war in many armed conflicts, the application and enforcement of international humanitarian law requiring humane medical treatment of victims has been weak (Radhakrishnan et al., 2017).

Africa is the region where suffering due to unsafe abortion is greatest and where the stakes are currently highest in contested population and abortion policies. Through the efforts of concerned advocates, regional bodies in Africa, including the African Union and health ministers’ organizations, have provided spaces to debate abortion and have adopted measures to encourage national-level action. Most important and dramatic was the Protocol to the African Charter on Human and Peoples’ Rights on the Rights of Women (known colloquially as the “Maputo Protocol”) adopted in 2003, which came into force through national ratifications across the African region in 2005. The Protocol calls on governments in Article 14(2)(c): to “*protect the reproductive rights of women by authorizing medical abortion in cases of sexual assault, rape, incest, and where the continued pregnancy endangers the mental and physical health of the mother or the life of the mother or the fetus.*” In 2014, the African Commission on Human and People’s Rights interpreted the abortion language in the Protocol in a General Comment, in order to clarify the obligations of states parties to apply the Protocol in domestic laws (African Commission on Human and People’s Rights, 2014). In the last 25 years, a number of governments in the region have advanced abortion access through new laws or national guidelines, including South Africa, Ethiopia, Ghana, Kenya, Zambia, and Mozambique. These positive developments reflect the dynamic interplay between global, regional, and national policy and normative changes, where progress at one level reinforces

progress at the other levels (Hessini et al., 2006). Abortion remains a highly controversial issue throughout the region, however.

Policy changes at global and national levels have occurred despite resistance from anti-abortion groups and have often met setbacks due to the backlash from such groups. Opposition to abortion over the last 25 years has merged into a globalized ideological movement that upholds the “natural family” (a family headed by a married man and woman) and opposes broader population and reproductive health policies as well as many of the rights of lesbian, gay, bisexual and transgender (LGBT) people (Barthélemy, 2018). A recent product of this movement is the “Geneva Consensus” a multilateral declaration led by the United States under the Trump Administration, which purports to uphold women’s health and strengthen “the family”. The declaration challenges abortion rights and alludes to fetal rights, which are not recognized in international human rights instruments. The non-binding declaration, which claims, “there is no international right to abortion, nor any international obligation on the part of states to finance or facilitate abortion,” was co-sponsored in October 2020 by the United States, Brazil, Hungary, Egypt, Indonesia, and Uganda, and co-signed by an additional 26 countries. The longevity and influence of the declaration remains to be seen, however, as President Biden withdrew United States’ co-sponsorship and signature through executive action within his first 10 days in office.

### **COVID-19 and Abortion Policy Changes**

While debates about abortion were ongoing in various international arenas, the global COVID-19 pandemic arrived early in 2020 as a major new force, with varying consequences for abortion policies and services, depending on the country. In many places, the pressures on health systems and providers caused by the pandemic resulted in more abortion access barriers for women, as health facility staff and public funding were diverted away from sexual and reproductive healthcare, and border closures and travel restrictions exacerbated pre-existing difficulties

in ensuring the supply of necessary medications and equipment as well as women’s ability to travel to seek safe care in less legally restrictive settings. Movement restrictions imposed on citizens through lockdowns, and concern about visiting health facilities for fear of exposure to COVID-19, further impeded women’s pathways to care even where abortion is legal. The situation was rendered more dire by the loss of contraceptive methods and services for tens of millions of women. In April of 2020, UNFPA projected that more than 47 million women living in developing countries could lose access to modern contraceptive methods and experience seven million unintended pregnancies because of lockdowns or service disruptions lasting for 6 months. Following the advent of the pandemic, an examination of requests for medical abortion from the online tele-medicine service Women on Web revealed that requests went up significantly among women living in countries where abortion was mostly provided in hospitals and where COVID-19 movement and travel restrictions were more constricting (Aiken et al., 2021).

Despite statements from global and regional bodies and leading medical associations in the United States (European Parliament, 2020; The American College of Obstetricians and Gynecologists, 2020; WHO, 2020b) that explicitly endorsed continued access to safe abortion during the pandemic, countries adopted a variety of policy measures in the context of COVID-19 – some to curtail abortion access and others to expand it. In April and May of 2020, policymakers in multiple U.S. states and countries around the world decided to exclude abortion from essential services. Across Europe, abortions were banned or restrictions tightened further in seven countries (Andorra, Hungary, Liechtenstein, Malta, Monaco, San Marino, and Poland). In a handful of other countries, women who were symptomatic or tested positive for COVID-19 were denied or forced to delay appointments for safe abortion care (Moreau et al., 2020).

By contrast, in a number of settings, decisions were made to ease women’s access to abortion through enabling or expanding use of tele-

medicine and self-managed approaches to medical abortion (Moreau et al., 2020; Romanis & Parsons, 2020). By late summer 2020, six European countries had relaxed medical abortion measures in response to COVID-19 through official policy changes. As of late 2020, in England and Wales, for example, health department guidelines allowed abortion providers to mail abortion medications to those in need following a phone or video call consultation, but there was a sunset clause attached to these provisions. Research documenting how these temporary shifts to de-medicalize abortion provision affected demand, quality, safety, and client satisfaction may pave the way for more permanent, progressive reforms.

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### **National Abortion Policies: Implementation and Impact**

Typically, countries' abortion policies are described according to the permissible legal indications for a woman to access abortion. For example, the Center for Reproductive Rights (CRR) provides extensive information on the world's abortion laws, classifying countries according to those that allow abortion to save the woman's life; to protect her health; on broad social or economic grounds; on request; in cases of rape and/or incest; and/or recognizing various degrees of fetal viability and impairment. CRR further categorizes countries and the percent of the population of women globally living in each category, based on whether abortion is prohibited altogether (5%); or allowed to save a woman's life (22%); to preserve her health (14%); on broad social or economic grounds (23%); or on request, with varying gestational limits (36%) (Center for Reproductive Rights, 2021).

In this chapter, countries' abortion policies are grouped in yet another breakdown of four categories: (a) countries with stable, liberal policies; (b) countries on an uncertain pathway toward expanded abortion access, with many obstacles and setbacks; (c) countries stalled in progress toward liberal policies but where clandestine abortion is widely practiced; and

(d) countries with the most extreme policies, enforced with severe penalties.

The purpose of this categorization is to look beyond the wording of laws and policies to also take into account the conditions in which these policies were adopted and how they are implemented, ultimately shaping the reality of women's experience in accessing safe abortion care. The categories are initial and in future analyses could be more systematically and rigorously defined. The brief descriptions below will provide a glimpse into the varied social conditions that give rise to debates over abortion policy, influence the pace of change, and govern the reaction to policies and their implementation over time. Relevant conditions may include the degree of effective civil society engagement in policy making, the strength of the judicial system, the role of religion in political life, the level of poverty and economic inequality, the economic and political roles of women, and the strength of the health system, including use of modern technologies. The grouping of countries here also suggests that federal political systems encounter more challenges in achieving a consistent and stable policy, although they sometimes afford opportunities for policy innovations at the subnational level. The discussion below presents highlights of abortion policy development in selected countries, illustrating the high degree of complexity and variability in these policies. Over time, countries will also shift within and across these categories as conditions change. Information for each country is synthesized from multiple sources and authors' observations; references therefore are not provided.

### **Countries with Stable, Liberal Policies**

In this category, a particularly interesting example is Canada, which does not have a national abortion law, following a decision of the Canadian Supreme Court in 1988. Ever since then, abortion has been provided as part of Canada's national health service and regulated primarily as other medical care is regulated. Despite what seems to be an ideal policy framework, women

reportedly face barriers in accessing abortion in Canada, depending on what province they live in, such as funding and gestational limitations set by provincial governments, long distances to facilities providing abortions, and waiting lists. Changes in the national government have also affected Canadian policies, especially within its foreign aid program.

The United Kingdom reformed its abortion law in 1967, with services funded and available through the National Health Service (NHS) and its partner non-governmental organizations, such as MSI Reproductive Choices. Some health system barriers to access have nevertheless remained including waiting times and issues of eligibility for free NHS services. However, with the onset of COVID-19, as noted above, new NHS guidelines allow medical abortion via telemedicine, although they may be subject to change when the pandemic abates. UK foreign aid policy has also remained fairly consistent in allowing support for safe abortion in overseas programs.

Two countries where abortion access enjoys the widest public support are Sweden and the Netherlands. Sweden started on the path toward abortion legalization in 1938, finally establishing abortion in 1974 as a woman's decision through the 18th week of pregnancy. In 1984, the Netherlands legalized abortion up to the 21st week of pregnancy with few requirements. Significantly, both countries have strong, publicly subsidized programs for access to contraception as well as sexuality education. As a result of these progressive policies, abortion-related morbidity and mortality rates are extremely low.

### **Countries on an Uncertain Pathway Toward Expanded Abortion Access, with Many Obstacles and Setbacks**

This category includes countries in every region that have seen enactment of abortion policy reforms in the last 50 years – and yet have faced continuing and significant challenges in the interpretation and implementation of the policies, with many obstacles to women's access. Such reforms have been driven mainly by health considerations and protection of women's autonomy, and yet

abortion stigma and political opposition prevent full realization of the potential benefits of the reforms. Notably, these reforms have rarely been undertaken as components of "population" policies, although in some settings the demographic implications of expanding women's access to abortion have doubtless been present in the thinking of supportive (or opposed) policymakers.

*North America* In the United States, a major turning point was the Supreme Court decision in 1973, *Roe v. Wade*. While that decision established that women should be able to access abortion on demand in the first trimester, and also at later stages of pregnancy with certain limitations, it was modified in a later decision in 1993, in which the Court set a standard of "no undue burden" to be placed on women. With the Federal system of the U.S., each state has been free ever since to regulate abortion in ways that restrict availability and access to services so long as they do not violate the undue burden standard. With some exceptions, such as New York, Illinois, Vermont, Massachusetts, and Rhode Island, state-level restrictions have increased significantly, especially since 2010.

A particularly notable aspect of the abortion situation in the U.S. is the suite of legislative restrictions on Federal funding of abortion care. Like the Helms amendment discussed previously, the Hyde Amendment has effectively banned funding for abortion since 1976 through the Medicaid program for low-income people. Similar restrictions appear in a range of U.S. laws, extending even to women serving in the military and the Peace Corps. Only narrow exceptions in cases of rape, incest, and danger to the life of the woman are permitted, and these are rarely implemented.

Abortion limitations in the United States continue to be contested in courts, in legislatures, and at the ballot box. Limitations on services result in delayed or less optimal care as women may have to travel great distances to obtain abortions, or resort to clandestine or unsafe self-induced abortions. Although the 2020 Presidential election ushered in a Democratic administration supportive of

abortion rights, the administration could command only a slim majority in Congress, and the majority of justices in the Supreme Court have records opposing abortion rights. In 2021, the Court agreed to take up a major challenge to its earlier Roe decision based on a Mississippi ban on abortion after 15 weeks, for which a decision will be announced in 2022. Shortly after the Court agreed to hear the Mississippi case, a new abortion law went into effect in Texas, which bans abortion after a fetal heartbeat can be detected, except in case of a medical emergency, effectively restricting abortions to gestations less than 6 weeks, when many women do not know they are pregnant. The Texas law enables private citizens to sue anyone who helps a woman obtain an abortion outside of these grounds. Thus, the abortion tug of war in the United States inevitably continues.

**Asia** India was one of the first countries in Asia to legalize abortion, in 1971, primarily for reasons of public health and reducing maternal mortality, although concerns at the time about fertility and rapid population growth undoubtedly reinforced support among some parliamentarians. Even 50 years later, access to safe abortion care nevertheless remains highly variable across (and within) the states in India's federal system. Both providers and women are hampered by many regulations that limit access, including those that prevent midlevel providers from performing abortions and facility certification requirements. Ironically, India has become a major producer of all kinds of medications over the years, including those for medical abortion. Yet pharmacists and drug sellers are often poorly informed about dosages. Rising use of ultrasound early in pregnancy, fueling sex-selective abortion, has also stood in the way of measures to remove barriers to abortion access. As of 2021, both houses of India's parliament had adopted a law relaxing certain restrictions, including allowing single women to request abortions and raising the gestation limit for women who are victims of rape and in other limited circumstances.

In 2002, after years of advocacy, Nepal was one of the first among the less developed countries to legalize abortion on request up to 12 weeks, with various indications allowed later in pregnancy. This policy change was influenced by an organized women's movement framed around the drive for Safe Motherhood to reduce extremely high maternal mortality from all causes including unsafe abortion. Progress on a policy level after legalization proceeded relatively rapidly and seemingly with few obstacles. Nepal became one of the first less developed countries to implement strategies for reaching women even in remote areas with medical abortion and provide free first trimester abortion in the public health system. Still, almost two decades later, many obstacles remain due to weaknesses in the health system, lack of awareness of the legality of abortion among women, persistent stigma, and the damaging impact of abortion-related funding restrictions within foreign aid policies of the U.S., a major health donor.

**Africa** South Africa was one of the first countries in sub-Saharan Africa to legalize abortion on a woman's request. The 1996 national Constitution, adopted after apartheid ended, established "the right to make decisions concerning reproduction" as a fundamental right which was reinforced in the same year by the Choice on Termination of Pregnancy Act. Regulations also allowed care to be provided by trained nurses and midwives, an early step that helped expand access to care in a number of settings. Abortion-related mortality fell dramatically soon after legalization, and South Africa even served as a regional model for what was possible both at the policy level and through service delivery. As in India, however, implementation in the public health system remained very much in the hands of leadership at the subnational level, in South Africa's provinces. Religious opposition also began to materialize, with widespread conscientious objection by healthcare providers and persistent abortion stigma throughout the population. Private

providers have taken over much of the provision of abortion care, which is often unsafely performed. Affordable access to care has been limited for women living in poverty, adolescents, and other marginalized groups.

As with other countries where a major regime change paves the way for abortion policy reform, the Ethiopian parliament legalized abortion in 2004 for expanded indications as a follow on to constitutional reform and in the context of adopting a new Family Code. Advocacy by the Ethiopian Society of Obstetricians and Gynecologists and the Ethiopian Women Lawyers Association as well as others, including the local country team of the international NGO Ipas, played a critical role. National guidelines were issued for implementation of the policy in 2005, and progress in access has been made at every level of the health system through the training of mid-level providers as well as physicians. Morbidity due to unsafe abortion has dropped significantly. Still, as with Nepal, persistent weaknesses in the health system and the limitations created by the U.S. as a major health donor have both been impediments to progress.

Ghana also presents an interesting case in Africa, as the abortion law was loosened in 1985, through the action of an autocratic President, Jerry Rawlings, allowing abortion for a range of indications including where the pregnancy would threaten the woman's physical or mental health or life. Little action followed, however, until Ghanaian health leaders attended a regional conference organized by Ipas in 2003, after which they implemented measures to expand access with foreign assistance. A helpful step was adoption of national guidelines in 2006 that based the health indication on the WHO's broad definition of health as complete physical, mental, and social well-being. Ghana also had a strong cadre of midwives and in the 1990s, with USAID support, started a postabortion care (PAC) training program. The PAC program was a critical step not just in Ghana but in other

countries, particularly in Africa, as an entry point to build awareness of unsafe abortion, reduce stigma among providers, and ensure life-saving treatment for women suffering the complications of unsafe abortion. Progress has been made toward safe abortion in Ghana, although with many setbacks similar to those in Ethiopia.

Compared to all of the African countries described thus far, Kenya has been more affected by organized and sustained anti-abortion activism that has impeded reform efforts for the last 25 years, much of it stimulated through Catholic and evangelical church groups. Such groups are influential politically in Kenya and also benefit from external support and encouragement, including by anti-abortion groups in the United States. This activism has come up against the reality of high levels of unsafe abortion and abortion-related morbidity and mortality. Starting in the 1990's, initially in conjunction with PAC programs, medical and public health leaders as well as women's rights groups began advocacy efforts to liberalize the Kenyan law. In line with the law introduced by Great Britain when Kenya was a colony, abortions were allowed only if the pregnancy endangered the woman's life. Partial success toward policy reform came when a new Constitution was adopted in 2010 through a public referendum. Language in the Constitution allowed for abortion to occur in cases of a pregnancy threatening the woman's health. Subsequently the Ministry of Health issued guidelines in 2012 consistent with the intention of the Constitution, but political and religious pressures led to withdrawal of the guidelines soon afterward. They were then approved in 2019 by the High Court of Kenya, although implementation by the Health Ministry is lacking. Groups supporting access to safe abortion in other Anglophone African countries, such as Malawi, Tanzania, Uganda, and Sierra Leone, continue to be active, yet advocates struggle against the vise grip of religious leaders who are politically influential and the strong hold on the health sector by the United States as a major donor.

**Latin America** Countries of Latin America were later arrivals in the battles for abortion policy reforms, in part due to the overwhelming political and societal influence of the Catholic Church. Nevertheless, they offer interesting examples of different strategies for change-making, often spearheaded by the feminist movements that have long been active at national and regional levels.

In Uruguay, an alliance between women's movement leaders and the Ministry of Health led to an innovative strategy for "harm reduction," gradually implemented between 2001 and 2012. Under this model, taken up in various forms in other countries, the Ministry allowed women to receive information and counseling in the use of misoprostol for early abortion without running afoul of the restrictive abortion law that criminalized abortion with very few exceptions such as a pregnancy threatening a woman's life or resulting from rape. Following counseling, women could then purchase the drug for themselves and return later, as needed, to public hospitals for PAC. Abortion was ultimately decriminalized and legalized in Uruguay in 2012.

In Mexico, with its federal system, changes in abortion laws have of necessity had to be addressed separately in each state. The first legalization occurred in 2007 in the Federal District, the jurisdiction renamed Ciudad de Mexico, or in English, Mexico City. The law was contested in the Mexican Supreme Court, which upheld the law after dramatic hearings in 2008. The health system of Mexico City was innovative in its early introduction of medical abortion, and access improved. Still, backlash from an active anti-abortion movement and the continued influence of the Catholic Church slowed progress, especially in other states. In 2019, Oaxaca was the only other state to follow the lead of the Federal District. However, following additional efforts made by feminist activists, lawmakers in Hidalgo and Veracruz voted in 2021 to decriminalize abortion, and shortly thereafter the Mexican Supreme Court ruled that criminalizing abortion is unconstitutional. This ruling did not automati-

cally legalize abortion in each of the country's 32 states, but it did establish a precedent that judges across the country have to follow in future decisions, and is an historic victory for women's rights activists in Mexico and the region (see also Box 28.1 on abortion in Argentina).

#### **Box 28.1: Abortion Legalization in Argentina**

In January 2021, Argentina became the fourth country in Latin America to legalize abortion on request, seen by many as a model for future change across the region. Abortion was previously allowed with very limited exceptions that were rarely enabled in practice, particularly for poor women. Under the new law, abortion is free in public hospitals and available on demand through the first 14 weeks of pregnancy. This sea change followed years of organizing by activist women's movements that became known globally as "the green tide." In 2018, they mobilized en masse in support of an abortion reform bill that was narrowly defeated in the Senate. However, the legislative debates over that bill thrust abortion into the following year's presidential campaign, and in 2020, President Fernandez introduced a similar bill, which ultimately became law, although lawsuits challenged its constitutionality. Conscientious objection is another barrier to abortion access, particularly in rural areas that are heavily influenced by the Catholic and Evangelical churches. Technically, the law only allows conscientious objection when the pregnant person can be referred to a capable and willing provider without delaying the abortion. Until provider regulations, effective monitoring systems and enforcement measures are developed and put into practice throughout the health system, however, application of the law could remain inconsistent across the country's 23 provinces.



## Countries Stalled in Progress Toward Liberal Policies, But Where Clandestine Abortion Is Widely Practiced

In every region, countries exist that have strong cross-pressures around abortion co-existing with highly restrictive laws, where the issue has been raised in the media and in governing bodies, and where local practice and lax enforcement have enabled women to obtain abortions, often more or less safely.

Nigeria, the largest country in Africa, has had a strong movement for reform led by physicians, women lawyers, and a range of civil society groups over several decades. Despite a very restrictive law, abortion is widely practiced, with considerable support in the health sector. The Ministry of Health under leadership of a supportive Minister published guidelines in 2018 that reflected an expanded interpretation of the only legal exception, risk to the woman's life, allowing abortion for a range of health indications. However, Nigeria's federal system, made up of 36 states, also entails that legislation concerning abortion be adopted at the state level. While progress was made recently in Lagos State, efforts to liberalize federal and state laws have been largely unable to succeed in the face of persistent stigma and well-organized anti-abortion opposition supported by both conservative Muslim and Catholic groups. A similar dynamic holds in much of West Africa.

In Indonesia, which instituted a strong family planning program decades ago, abortion has also been widely practiced. The strengthening of Muslim fundamentalism has prevented efforts to liberalize the law, however, and a revised Criminal Code proposed in 2019 could further tighten restrictions. Similar to Indonesia, Egypt had a relatively strong family planning program for decades but the law criminalized abortion and permitted it only to save the woman's life. In 2017, the Egyptian Initiative for Personal Rights together with the global feminist alliance Realizing Sexual and Reproductive Justice (RESURJ), called on the Egyptian government to re-think the abortion law in accordance with

the Maputo Protocol. However, the government has neither signed nor ratified the Protocol, and no progress has yet been made (see also Box 28.2 on abortion and menstrual regulation in Bangladesh).

### Box 28.2: Enabling Safe Abortion in a Legally Restrictive Context: Menstrual Regulation in Bangladesh

The abortion law in Bangladesh has not changed since 1860, when it was a British colony. The penal code bans all abortions except those needed to save the life of the pregnant woman. In 1974, however, menstrual regulation (MR) was introduced in the national family planning program, and in 1979 the government required all public sector hospitals and family planning centers to make it available. MR is a procedure to "regulate the menstrual cycle when menstruation is absent for a short duration" – up to 28 weeks since a woman's last menstrual period (LMP) using MVA and more recently, also using mifepristone and misoprostol up to 9 weeks LMP. Since MR is not preceded by a pregnancy test, it is not regulated by the abortion law. Mid-level family welfare visitors (FWVs) are the backbone of the MR program. FWVs mostly work in rural areas, and tend to be women, which is an important consideration in the predominantly Muslim country. MR, along with increased use of contraception, has led to a marked decline in mortality due to unsafe abortion. However, women's access continues to be obstructed by continued criminalization of abortion outside of the conditions permitted for MR, lack of awareness of MR, hidden fees, reduced training of younger providers, and denial of services by providers – including for unsanctioned reasons.

In Latin America, Bolivia offers an example of legal reform that was close to being accomplished and then suddenly reversed. The process began

with an alliance between the health sector and women's leaders who worked for the scale-up of PAC in the 1990s and after 2000, to a great extent with support from the United States aid program. The movement for abortion reform then gained traction through a regime change as the leftist government of President Evo Morales took control in 2006. Even then, resistance remained strong. A Court decision in 2014 removed some barriers for women who are victims of rape or incest. A law to allow greater access to safe abortion was adopted in 2017 in the national legislative assembly as part of overall penal code reform. Almost immediately afterward in early 2018, however, President Morales bowed to political pressure and rescinded the law.

Brazil is a country where a feminist movement has fought to liberalize the law for decades against an entrenched and politically influential Catholic hierarchy. Despite widespread use of contraception and practice of abortion, a conservative elite has held sway in the parliament. Brazil is known globally for the use of misoprostol to terminate pregnancies starting in the 1980s, when the drug "Cytotec" was introduced for ulcer treatment and women became aware of its contraindication in pregnancy. The government acted in 1991 to restrict the sale and use of misoprostol so that it would be less accessible for use in clandestine abortions. Abortion cases have also been brought to the courts in Brazil, with a notable decision in 2012 by the Supreme Court to allow abortion in cases of pregnancy where the fetus is anencephalic. Still, legislative progress is effectively stalled.

### **Countries with the Most Extreme Policies, Enforced with Severe Penalties**

The rights of women to make voluntary decisions about abortion can be threatened when either extreme anti-natalist or pro-natalist population policies are adopted. In 1979, China adopted its One-Child policy, which remained in effect to varying degrees until 2016, buttressed by penalties and local enforcement that often led to forced abortions. Even with the relaxation of the

policy, other social policies around housing, employment, and education discourage Chinese couples from having more than one or two children. Faced with the consequences of the earlier policies for the sex ratio at birth and age structure, the government is reportedly now encouraging couples to have up to three children. Nevertheless, coercive anti-natalist policies reportedly continue to be directed toward some groups such as Muslim ethnic minorities.

Europe has also seen extreme policies historically. Nazi Germany implemented harsh eugenic sterilization and abortion policies to reinforce and advance what was believed to be the superior Aryan race. Romania under the totalitarian regime of Nicolae Ceausescu adopted a pro-natalist policy in 1967 to try to raise fertility, effectively outlawing abortion as well as contraception with limited exceptions. The result was an immediate increase in maternal mortality as Romanian women turned to unsafe abortions. The policy was finally reversed in 1989, followed by a dramatic drop in maternal mortality.

Currently, a number of countries continue to have policies in place that ban abortion entirely and that lead to some women being imprisoned when authorities believe them to have undertaken induced abortions – including El Salvador, Honduras, the Dominican Republic, Nicaragua, Malta, the Philippines, and Senegal – as well as harsh penalties for providers. Many women nevertheless undergo abortions, with widespread suffering as a result. In recent years, the government of Rwanda released more than 50 women who had been imprisoned on grounds of having had abortions.

In modern Europe, Poland stands out as having one of the most restrictive abortion laws. A ruling by the Constitutional Tribunal in 2020 found that the 1993 law permitting abortion in cases of severe fetal disabilities is unconstitutional. Despite opinion polls showing that a majority of Poles opposed a more restrictive law, Catholic Bishops and lay groups influenced the governing Law and Justice Party to impose such restrictions. Since almost all legal abortions were performed on the grounds of fetal malformations, the court ruling thus effectively

banned abortions. The ruling prompted huge protests and strikes around the country when it was issued in October 2020, preventing the ruling from being officially published and entering into force until January 2021. The culture war over the abortion law in Poland will certainly continue for the foreseeable future.

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## **Conclusion: Toward Enlightened Abortion Policies**

As this overview of selected national policies and practices suggests, when policies are reformed in accordance with principles of public health, human rights, gender equality, and social justice, they will have the greatest benefit for women and girls, their families, and society at large. In more concrete terms, under enlightened abortion policies, women are trusted to make their own reproductive decisions with whatever advice they choose to seek; health providers are trained and equipped to provide high quality care; and financing is available to ensure that no woman is denied abortion due to inability to pay for it. These features of abortion policies have long been considered to be the basic requirements to prevent unsafe abortion and ensure women's reproductive choices. However, policymakers need to consider other important dimensions of the issue as well.

First, as previously described, clinical guidance and technologies for early abortion procedures have evolved and improved, particularly with the advent of medical abortion. Most importantly, the pills can be administered through telemedicine approaches and even by women themselves safely with adequate information. Thus, a large percentage of procedures could be undertaken outside of health facilities if supported by enabling policies, regulations, and clinical guidelines. Authorization of service providers' scope of practice and their training need to take into account the evidence and allow for greater roles for midlevel providers in every setting, who are generally more plentiful and often closer to women in their communities.

Second, the financing of abortion care in many jurisdictions is often not integrated with national health insurance, or with other public sector health budgets, including global health assistance. Abortion is often excluded even from funding streams focused on closely related aspects of family planning and other reproductive healthcare. The inevitable result is that services are provided through separate channels. Abortion is relegated to specialized clinics whose services are often more costly and whose clientele often are unable to readily access post-abortion family planning and other mental and physical healthcare that they may need.

Third, preventive efforts are inadequate. Women and girls, as well as their male partners, need to be offered comprehensive sexuality education as well as comprehensive contraceptive services with a range of choices of methods. Reproductive health services should offer emergency contraception for women who are within a few days of unprotected intercourse. Ideally, there should be a continuum of care from prevention of unwanted pregnancy to the option of a safe abortion as early as possible – or as late as necessary – for women who choose to terminate their pregnancies.

Fourth, stigma on abortion, reinforced by religious dogmas and cultural traditions, remains a major challenge that requires further education and engagement of community leaders at every level.

In sum, abortion policies as part of enlightened population policies include the following elements:

- Complete decriminalization of the procedure, with no criminal penalties for providers, women, or others who provide assistance to women seeking abortion;
- Provisions for training of service providers and availability of affordable, high quality, user-centered abortion care at the community level, integrated with other health and contraceptive services, especially for unmarried and young people;
- Provisions for public financing of abortions for low-income women and adequate insurance

coverage for all women who rely on private insurance for their healthcare;

- Healthcare guidelines that enable de-medicalization of abortion care as much as possible, that allow for self-managed early abortion, and that ensure women have information on how to access backup healthcare if needed;
- Systems for supplies of drugs, medical devices, and other equipment that enable women to have a choice of methods;
- Programs that ensure people are well informed about laws, the care that is available, and the means of preventing unintended pregnancies through comprehensive sexuality education; and
- Programs that inform the wider public about sexual and reproductive health and rights and that work to reduce the cultural stigma on abortion.

Finally, recognition has increased that the promise of “choice” under reformed abortion policies may be an empty one for many women. Women who are poor, marginalized, young, or in other challenging circumstances, such as refugees, may feel compelled to end a pregnancy even though in better circumstances they would want to bear a child. In the words of proponents from SisterSong Women of Color Reproductive Justice Collective: “Abortion access is critical, and women of color and other marginalized women also often have difficulty accessing contraception, comprehensive sex education, STI prevention and care, alternative birth options, adequate prenatal and pregnancy care, domestic violence assistance, adequate wages to support our families, safe homes, and so much more” (SisterSong, 2021). Following from these concerns, “reproductive justice” means that women can choose when to have a child and can be assured that they will have the means to care for and raise the child successfully from infancy to adulthood.

The principle of reproductive justice is integral to an enlightened, human rights-based population policy and was implicit in principles advanced in the *Programme of Action* agreed by 179 nations at the International Conference on Population and

Development (ICPD) in 1994. Along with contraception, access to safe abortion within a reproductive justice framework and according to the ICPD principles will help ensure positive outcomes: reductions in fertility and maternal mortality and morbidity as well as stabilization of population growth in the context of environmentally sustainable economic development.

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## References

- African Commission on Human and People’s Rights. (2014). *General Comment No. 2 on Article 14.1 (a), (b), (c) and (f) and Article 14.2 (a) and (c) of the Protocol to the African Charter on Human and Peoples’ Rights on the Rights of Women in Africa*. African Commission on Human and People’s Rights. See <https://www.achpr.org/legalinstruments/detail?id=13>
- Aiken, A. R. A., Starling, J. E., Gomperts, R., Scott, J. G., & Aiken, C. E. (2021). Demand for self-managed online telemedicine abortion in eight European countries during the COVID-19 pandemic: A regression discontinuity analysis. *BMJ Sexual and Reproductive Health*, 1–8.
- Barthélemy, H. (2018). *The American anti-LGBT movement goes to Italy*. Southern Poverty Law Center. See <https://www.splcenter.org/hatewatch/2018/12/19/american-anti-lgbt-movement-goes-italy>
- Bearak, J., Popinchalk, A., Ganatra, B., Moller, A. B., Tunçalp, Ö., Beavin, C., Kwok, L., & Alkema, L. (2020). Unintended pregnancy and abortion by income, region, and the legal status of abortion: Estimates from a comprehensive model for 1990–2019. *The Lancet Global Health*, 8(9), e1152–e1161.
- Berro Pizzarossa, L., & Skuster, P. (2021). Toward human rights and evidence-based legal frameworks for (self-managed) abortion: A review of the last decade of legal reform. *Health and Human Rights*, 23(1), 199–212.
- Bongaarts, J. (1982). The fertility-inhibiting effects of the intermediate fertility variables. *Studies in Family Planning*, 13(6–7), 179–189.
- Brooks, N., Bendavid, E., & Miller, G. (2019). USA aid policy and induced abortion in sub-Saharan Africa: An analysis of the Mexico City Policy. *The Lancet Global Health*, 7(8), e1046–e1053.

- Center for Reproductive Rights. (2021). *The world's abortion laws*. Center for Reproductive Rights. See [https://reproductiverights.org/sites/default/files/WALM\\_2021update\\_V1.pdf](https://reproductiverights.org/sites/default/files/WALM_2021update_V1.pdf)
- Chong, E., Shochet, T., Raymond, E., Platais, I., Anger, H. A., Raidoo, S., Soon, R., Grant, M. S., Haskell, S., Tocce, K., Baldwin, M. K., Boraas, C. M., Bednarek, P. H., Banks, J., Coplon, L., Thompson, F., Priegue, E., & Winikoff, B. (2021). Expansion of a direct-to-patient telemedicine abortion service in the United States and experience during the COVID-19 pandemic. *Contraception*, 104(1), 43–48.
- Cleland, J. (this volume). Chapter 27: The contraceptive revolution. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Corbett, M. R., & Turner, K. L. (2003). Essential elements of postabortion care: Origins, evolution and future directions. *International Family Planning Perspectives*, 29(3), 106–111.
- Crane, B. B. (1994). The transnational politics of abortion. In J. L. Finkle & C. A. McIntosh (Eds.), *The New Politics of Population: Conflict and Consensus in Family Planning, Population and Development Review*, 20(Suppl.), 241–262.
- David, H. P. (2006). Born unwanted, 35 years later: The Prague study. *Reproductive Health Matters*, 14(27), 181–190.
- Donovan, M. K. (2018). Self-managed medication abortion: Expanding the available options for U.S. abortion care. *Guttmacher Policy Review*, 21, 41–47.
- European Parliament. (2020). *Textes adoptés – Action coordonnée de l'Union pour combattre la pandémie de COVID-19 et ses conséquences – Vendredi 17 avril 2020*. European Parliament. See [https://www.europarl.europa.eu/doceo/document/TA-9-2020-0054\\_FR.html?utm\\_source=International+Campaign+for+Women%27s+Right+to+a+Safe+Abortion+membership+listandutm\\_campaign=c05213e6f2-andutm\\_medium=emailandutm\\_term=0\\_c9f67cdfa6-c05213e6f2-64323489](https://www.europarl.europa.eu/doceo/document/TA-9-2020-0054_FR.html?utm_source=International+Campaign+for+Women%27s+Right+to+a+Safe+Abortion+membership+listandutm_campaign=c05213e6f2-andutm_medium=emailandutm_term=0_c9f67cdfa6-c05213e6f2-64323489)
- Faundes, A., Comendant, R., Dilbaz, B., Jaldesa, G., Leke, R., Mukherjee, B., Padilla de Gil, M., & Tavora, L. (2020). Preventing unsafe abortion: Achievements and challenges of a global FIGO initiative. *Best Practice & Research. Clinical Obstetrics & Gynaecology*, 62, 101–112.
- Fine, J. B., Mayall, K., & Sepúlveda, L. (2017). The role of international human rights norms in the liberalization of abortion Laws globally. *Health and Human Rights*, 19(1), 69–80.
- Gambir, K., Kim, C., Necastro, K. A., Ganatra, B., & Ngo, T. D. (2020). Self-administered versus provider-administered medical abortion. *The Cochrane Database of Systematic Reviews*, 3(3), CD013181.
- Ganatra, B., Gerds, C., Rossier, C., Johnson, B. R. J., Tunçalp, Ö., Assifi, A., Sedgh, G., Singh, S., Bankole, A., Popinchalk, A., Bearak, J., Kang, Z., & Alkema, L. (2017). Global, regional, and subregional classification of abortions by safety, 2010–14: Estimates from a Bayesian hierarchical model. *The Lancet*, 390(10110), 2372–2381.
- Greene Foster, D. (2020). *The Turnaway study: Ten years, a thousand women, and the consequences of having – Or being denied – An abortion*. Scribner.
- Hessini, L., Brookman-Amisshah, E., & Crane, B. B. (2006). Global Policy Change and Women's Access to safe abortion: The impact of the World Health Organization's guidance in Africa. *African Journal of Reproductive Health*, 10(3), 14–27.
- Hu, D., Grossman, D., Levin, C., Blanchard, K., Adanu, R., & Goldie, S. J. (2010). Cost-effectiveness analysis of unsafe abortion and alternative first-trimester pregnancy termination strategies in Nigeria and Ghana. *African Journal of Reproductive Health*, 14(2), 85–103.
- Johnson, B. R., Lavelanet, A. F., & Schlitt, S. (2018). Global Abortion Policies Database: A new approach to strengthening knowledge on laws, policies, and human rights standards. *BMC International Health and Human Rights*, 18, 35. <https://doi.org/10.1186/s12914-018-0174-2>
- Johnston, H. B., & Hill, K. H. (1996). Induced abortion in the developing world: Indirect estimates. *International Family Planning Perspectives*, 22(3), 108–137.
- Kim, S. (2019). Reproductive technologies as population control: How pronatalist policies harm reproductive health in South Korea. *Sexual and Reproductive Health Matters*, 27(2), 6–12.
- Marston, C., & Cleland, J. (2003). Relationships between contraception and abortion: A review of the evidence. *International Family Planning Perspectives*, 29(1), 6–13.
- Moreau, C., Shankar, M., Glasier, A., Cameron, S., & Gemzell-Danielsson, K. (2020). Abortion regulation in Europe in the era of COVID-19: A spectrum of policy responses. *BMJ Sexual and Reproductive Health*, 1–8.
- Noble, J., & Potts, M. (1996). The fertility transition in Cuba and the Federal Republic of Korea: The impact of organised family planning. *Journal of Biosocial Science*, 28(2), 211–225.
- Radhakrishnan, A., Sarver, E., & Shubin, G. (2017). Protecting safe abortion in humanitarian settings: Overcoming legal and policy barriers. *Reproductive Health Matters*, 25(51), 40–47.
- Raymond, E. G., Grossman, D., Mark, A., Upadhyay, U. D., Dean, G., Creinin, M. D., Coplon, L., Perritt, J., Atrio, J. M., Taylor, D., & Gold, M. (2020). Commentary: No-test medication abortion: A sample protocol for increasing access during a pandemic and beyond. *Contraception*, 101(6), 361–366.
- Romanis, E. C., & Parsons, J. A. (2020). Legal and policy responses to the delivery of abortion care during COVID-19. *International Journal of Gynaecology and Obstetrics*, 151(3), 479–486.
- Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A.-B., Daniels, J., Gülmezoglu, A. M., Temmerman,

- M., & Alkema, L. (2014). Global causes of maternal death: A WHO systematic analysis. *The Lancet Global Health*, 2(6), e323–e333.
- Sedgh, G., Bearak, J., Singh, S., Bankole, A., Popinchalk, A., Ganatra, B., Rossier, C., Gerds, C., Tunçalp, Ö., Johnson, B. R. J., Johnston, H. B., & Alkema, L. (2016). Abortion incidence between 1990 and 2014: Global, regional, and subregional levels and trends. *The Lancet*, 388(10041), 258–267.
- Singh, S., Remez, L., Sedgh, G., Kwok, L., & Onda, T. (2018). *Abortion worldwide 2017: Uneven progress and unequal access*. Guttmacher Institute.
- Singh, S., Juarez, F., Prada, E., & Bankole, A. (2019). Estimating abortion incidence: Assessment of a widely used indirect method. *Population Research and Policy Review*, 38(3), 429–458.
- SisterSong. (2021). *Reproductive justice*. SisterSong. See <https://www.sistersong.net/reproductive-justice>
- Starrs, A. M., Ezeh, A. C., Barker, G., Basu, A., Bertrand, J. T., Blum, R., Coll-Seck, A. M., Grover, A., Laski, L., Roa, M., Sathar, Z. A., Say, L., Serour, G. I., Singh, S., Stenberg, K., Temmerman, M., Biddlecom, A., Popinchalk, A., Summers, C., & Ashford, L. S. (2018). Accelerate progress—sexual and reproductive health and rights for all: Report of the Guttmacher-Lancet Commission. *The Lancet*, 391(10140), 2642–2692.
- Sully, E. A., Biddlecom, A., Darroch, J. E., Riley, T., Ashford, L. S., Lince-Deroche, N., Firestein, L., & Murro, R. (2019). *Adding it up: Investing in sexual and reproductive health 2019*. Guttmacher Institute.
- The American College of Obstetricians and Gynecologists. (2020). *Joint statement on abortion access during the COVID-19 outbreak*. ACOG. See <https://www.acog.org/news/news-releases/2020/03/joint-statement-on-abortion-access-during-the-covid-19-outbreak>
- United Nations. (1999). *Key actions for further implementation of the programme of action of the international conference on population and development*. Department of Economic and Social Affairs. See [https://www.unfpa.org/sites/default/files/resource-pdf/key\\_actions.pdf](https://www.unfpa.org/sites/default/files/resource-pdf/key_actions.pdf)
- United Nations, Office of the High Commissioner for Human Rights. (2014). *Information-series-sexual-reproductive-health-rights*. OHCHR. See <https://www.ohchr.org/EN/Issues/Women/WRGS/Pages/Information-Series-Sexual-Reproductive-Health-Rights.aspx>
- United Nations Secretary-General. (2011). *Right of everyone to the enjoyment of the highest attainable standard of physical and mental health*. United Nations. See [https://www.un.org/ga/search/view\\_doc.asp?symbol=A/66/254](https://www.un.org/ga/search/view_doc.asp?symbol=A/66/254)
- WHO. (2011). *Unsafe abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008*. World Health Organization. See [http://apps.who.int/iris/bitstream/handle/10665/44529/9789241501118\\_eng.pdf?sequence=1](http://apps.who.int/iris/bitstream/handle/10665/44529/9789241501118_eng.pdf?sequence=1)
- WHO. (2012). *Safe abortion: Technical and policy guidance for health systems*. World Health Organization. See [http://www.who.int/reproductivehealth/publications/unsafe\\_abortion/9789241548434/en/](http://www.who.int/reproductivehealth/publications/unsafe_abortion/9789241548434/en/)
- WHO. (2020a). *Preventing unsafe abortion*. World Health Organization. See <https://www.who.int/news-room/fact-sheets/detail/preventing-unsafe-abortion>
- WHO. (2020b). *Maintaining essential health services: Operational guidance for the COVID-19 context interim guidance*. World Health Organization. See <https://www.who.int/publications/i/item/WHO-2019-nCoV-essential-health-services-2020.1>



Susan K. Brown

## Introduction

Immigration policies consist of the laws, regulations, and practices through which states decide what kinds and how many of other states' citizens they will admit or exclude and what status those admitted may claim. Immigration policies often vary across nations but follow certain patterns that reflect the economic priorities and political beliefs of the host countries and their sociocultural orientations toward newcomers. These policies are often political and sometimes fraught, because nothing so defines a nation as the ability to safeguard its borders and determine who may cross them. For that reason, immigration laws generally operate at national levels, but they may also be formed at a multinational level, rather than at lower levels of government (Goodman, 2019).

In contrast to immigration policies, immigrant policies address the rights of those admitted to a country and govern their participation in the country's civic, political, and socioeconomic life. These policies extend not only to immigrants seeking admission to work or rejoin families but also to those who come as refugees or asylum seekers. These laws and practices may apply to or deliberately exclude irregular migrants who may

have entered without or overstayed visas. Immigrant policies often originate at different levels of government than immigration policies. In the United States, immigrant policies tend to originate at the state or local levels and cover such areas as access to drivers' licenses for non-citizens or school training in the English language. In much of Europe, individual states may determine immigrant policy, whereas immigration policy is set through treaties (Goodman, 2019).

Historically, both immigration and immigrant policies are relatively new. Until the latter part of the nineteenth century, states generally did not regulate migration and were more concerned with who departed than who arrived. Often, the major receiving countries needed population, and their authority as nation-states was still evolving. The introduction of passports across many of the Western countries around the turn of the century exemplified states' expanding regulations of "legitimate 'means of movement'" (Torpey, 2018: xii) within an international system of passport controls. Beyond passports, many states now also require immigrants to obtain visas, or government authorizations delineating the length of stay, work eligibility, and any other factors. Individual agencies within states and even individual agents exercise great control over the granting of visas, with incentives not to admit terrorists or potential indigents (Infantino, 2021; Torpey, 2018). By the end of the twentieth century, virtually all developed states sought to deter

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widespread immigration, although they often tolerated or accepted labor migrants and refugees. Political theorists have seen such policy restrictions on immigration by developed states as critical factors in maintaining the Westphalian system of nation-states as well as the social cohesion necessary for democratic governance (Zolberg, 1999).

At the same time, however, the rise of the recognition of the human rights of migrants in the second half of the twentieth century and the end of the Cold War led to a rise in migration overall and prompted many migration scholars to anticipate a more open and liberal system of international migration, especially in Europe. Simultaneously, worldwide demographic changes had led to burgeoning population growth in the less developed countries and dwindling growth in more developed countries, with a resulting demand for more labor in higher-wage countries.

This chapter covers the scope and trends of current migration, theories and policies of migration and immigration, and global patterns in policies. The chapter also shows how the population structures in the more developed countries can make immigration economically attractive, even as nativist calls suggest that immigration may be politically unpopular. The chapter concludes by noting some political and economic challenges and trends in international migration.

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## Trends in Migration

By convention, international migration requires a move across national boundaries and involves some degree of permanence, often a year or more. For that reason, it does not cover tourists, seasonal workers, or other visitors. This migration is generally measured in terms of net migration, or the difference between in-migration and out-migration to a specific country over the course of a year. Historically, migration has been described using several heuristic distinctions. Perhaps the most basic separates voluntary migrants, who usually move for work or family reasons, from involuntary migrants,

who may be refugees, asylum seekers, or victims of trafficking. The United Nations formally defines refugees as people who have fled their homeland because of war or violence and have a well-founded fear of persecution based on their race, religion, nationality, political beliefs, sexual orientation, or membership in a social group. Despite the formal definition, however, the two types of migrants are not always distinct, especially in the case of those fleeing environmental degradation (Bates, 2002).

Pioneers, or the first individuals or groups undertaking a voluntary migration, set the stage for later migration and often lower the social and economic barriers to moving (Petersen, 1958). As the costs to migration diminish, it often becomes collective behavior, or 'mass migration'. Mass migration would characterize the vast European movements to the United States, Canada, Argentina, and Australia in the nineteenth and early twentieth centuries. Since the late twentieth century, most developed countries have tried to curtail mass permanent labor migrations except for those encouraging the return of diasporas to their original homelands, frequently as a way of increasing the size of their labor force without changing its ethnic composition (Tsuda, 2010). The German acceptance of *Aussiedler* is one such example, as is Israel's encouragement of Jewish settlers. Instead, many countries have encouraged policies allowing migrants to stay temporarily as guestworkers but not to remain indefinitely or gain legal permanent residence.

Voluntary migrants are usually not representative of the population of the origin country. Overwhelmingly, migrants are healthy young adults who often migrate before they marry or shortly thereafter. Labor migrants often come from communities with a history of migration, so they are familiar with migration networks, have already seen the benefits of remittances, and consequently may have developed a sense of relative inequality that may encourage their migration (Stark & Taylor, 1989). Because migrants need resources and contacts, they tend not to come from the poorest, least educated sectors of the origin society. Those with college degrees migrate more frequently because the potential



for wage gains benefits them the most, absolutely if not always relatively.

Migrants vary by gender as well. The proportion of women migrating rose slightly from 1960 to 2000 but has shrunk slightly since, primarily because of declines in female migration to such Western Asian countries as Oman, Qatar, and Turkey (Alcalá, 2006; United Nations, 2019). In much of the developed world, migration has been gender-balanced for a century or longer (Donato & Gabaccia, 2015). However, labor migration from Mexico to the United States, which initially was dominated by men, has dropped to slightly more male than female (Alcalá, 2006). Even in such countries as Saudi Arabia that restrict women's roles, women make up more than 30% of the immigrants. Although many women have traditionally migrated as dependents of male laborers, more of them now are labor migrants, and they work disproportionately in informal sectors such as housekeeping and caregiving (de Haas et al., 2020).

The most notable trend in migration in recent decades is its globalization (de Haas et al., 2020). Overall levels of migration have grown only slowly, though punctuated by such major disruptions as the breakup of the Soviet Union and the Syrian civil war (Zlotnik, 1999; Tyyskä et al., 2017). However, the number of origin countries has increased, and the level of intercontinental migration has grown, so that the mix of immigrants in the more developed countries has become far more diverse. In related fashion, the direction of dominant migration flows has changed. Through the first half of the twentieth century, the dominant migration flows originated in Europe, either through emigration or colonization. Since then, however, Europe has become an area of settlement (de Haas et al., 2020).

Although most migrants still gravitate toward Western countries, another trend in migration marks the rise of non-Western destinations, such as the Gulf region, the industrialized areas of East Asia, and the rising industrial areas of Southeast Asia. As these countries transition from sending countries to immigrant-receiving countries, their population becomes more ethnically diverse; but the process can happen in reverse, so that

countries that once received immigrants begin to send them, and the growth of diversity tapers (de Haas et al., 2020).

These trends have led to the politicization of immigration in receiving countries and raised questions of security and debates about belonging. As fertility rates in high-income countries have fallen, immigrants constitute a higher proportion of their national populations, especially among young adults. More developed countries generally encourage skilled migration, even as they have increasingly set up greater barriers for less-skilled migrants (Beine et al., 2016). Such barriers are both legal and physical, because border control policies and practices determine the difficulty with which both legal and unauthorized border crossers obtain entry (Andreas, 2000).

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## Distribution of Migration

As of 2019, 3.5% of the global population, or nearly 272 million people, had moved from the country of their birth (United Nations, 2019). As recently as 2005, only 2.9% of the world population consisted of international migrants, so migration has been increasing relative to the world population (see Table 29.1). The destinations are more concentrated in the more developed countries, where immigrants make up 12% of the population overall (United Nations, 2019). This proportion varies, from 2% in Japan to roughly 30% in Australia and Switzerland, 20% in Sweden and Austria, and 15.4% in the United States. In this century, immigration has kept the population of both Europe and North America from falling, most specifically in the 20 countries where two-thirds of all the world's migrants have moved. In terms of absolute numbers, the United States has received the most immigrants, followed by Germany and Saudi Arabia. The United Arab Emirates has risen quickly to become the second-largest receiving country in Asia (see Table 29.2).

Although migration among lower-income countries shares some of the processes driving migration to higher-income countries, circular and temporary migration feature prominently in

**Table 29.1** Estimated size of the international migration population, by region, 1990–2019

Regions by level of development	International migrant stock at mid-year (in millions)								
	1990	1995	2000	2005	2010	2015	2019	2015	2019
World	153.0	161.3	173.6	191.6	220.8	248.9	271.6	248.9	271.6
More developed	82.8	92.9	104.0	116.7	130.6	140.6	152.1	140.6	152.1
Less developed	70.2	68.4	69.6	74.9	90.2	108.2	119.6	108.2	119.6
International migrant stock as a percentage of the total population									
World	1990	1995	2000	2005	2010	2015	2019	2015	2019
More developed	2.9	2.8	2.8	2.9	3.2	3.4	3.5	3.4	3.5
Less developed	1.7	1.5	1.4	1.4	1.6	1.8	1.9	1.8	1.9
Annual rate of change of the migrant stock									
World	1990–1995	1995–2000	2000–2005	2005–2010	2010–2015	2015–2019	2015–2019	2010–2015	2015–2019
More developed	1.1	1.5	2.0	2.8	2.4	2.2	2.2	2.4	2.2
Less developed	2.3	2.2	2.3	2.3	1.5	2.0	2.0	1.5	2.0
	–0.5	0.4	1.5	3.7	3.6	2.5	2.5	3.6	2.5

Source: United Nations (2019) (United Nations database, POP/DB/MIG/Stock/Rev.2019)

**Table 29.2** Countries with the largest stock of international migrants, 2019 and 1990

Rank in 2019	Country	Migrant stock in 2019 (millions)	Rank in 1990	Migrant stock in 1990 (millions)	Percentage change, 1990–2019	Total population 2019 (in millions)	Migrant stock as percentage of total population, 2019	Number of refugees, 2019	Refugees as percentage of migrants
1	United States	50.7	1	23.3	117.6	329.1	15.4	929,762	1.8
2	Germany	13.1	6	5.9	122.0	83.5	15.7	1,399,669	10.7
3	Saudi Arabia	13.1	8	5.0	162.0	34.3	38.2	210	0
4	Russia	11.6	2	11.5	0.9	145.9	8.0	128,139	1.1
5	United Kingdom	9.6	12	3.7	159.5	67.5	14.2	162,202	1.7
6	United Arab Emirates	8.6	>20	1.3	561.5	9.8	88.0	2751	0
7	France	8.3	7	5.9	40.7	65.1	12.7	400,228	4.8
8	Canada	8.0	9	4.3	86.0	37.4	21.4	156,582	2.0
9	Australia	7.5	11	4.0	87.5	30.0	25.0	96,295	1.3
10	Italy	6.3	19	1.4	350.0	60.6	10.4	354,698	5.7

Source: United Nations (2019) (United Nations database, POP/DB/MIG/Stock/Rev.2019)

much South-South migration, together with low wages, remittances, and environmental stress (Anich et al., 2014). South-South migration is generally as substantial as South-North migration, though less studied. While the definition of countries in the South may vary slightly, depending on whether the definition of ‘South’ is geographical, income-based, or developmental, South-South migration often consists of flows from poorer to more middle-income neighbors and is sustained through social networks and relatively low intervening costs. For instance, roughly 60% of international migration originating in Asia also remains within Asia (Crush & Chikanda, 2018). In addition, migrants from the South have long faced major deterrents in heading to the North. Despite the generally porous borders and weak border controls in the less developed South, Northern countries have long worked with and given financial aid to lower-income countries to tighten their border controls to curtail irregular transit migration and deter asylum seekers (Adepoju et al., 2010; FitzGerald, 2019; Goodman, 2017).

Consistent with vast ‘South-South’ migration, Asia has outpaced Europe as the continent with the largest immigrant stock, at 84 million compared with 82 million migrants. India now exceeds Mexico as the largest country of origin globally (McAuliffe & Khadria, 2019), with China coming in third. Table 29.3 displays the source of the greatest diasporas, most in Asia. The shift toward Asia as the hub of migration has been building for half a century. The escalation in the price of oil in the 1970s encouraged oil producers

in the Gulf states of Western Asia to recruit workers from a variety of countries, first from the neighboring countries in the Middle East and later from South Asia. Meanwhile, as the economies of East Asia grew, their birthrates fell, and their populations aged, all of which created labor shortages; even so, policies for importing labor led to public consternation in societies that maintained a narrative of ethnic homogeneity. Bowing to its labor needs, Japan eased its tight strictures against immigration in the 1990s and began to attract immigrants from other parts of East Asia as well as ethnic Japanese from South America. Just a few years later, South Korea also became a country of immigration (de Haas et al., 2020). Although irregular immigration remains commonplace in Asia and less-skilled labor migration is the norm, ever more migration consists of highly skilled immigrants.

Although roughly two in three international migrants move because of work opportunities (McAuliffe & Khadria, 2019), some migrants have no choice. The number of displaced peoples and refugees is more volatile than the number of voluntary migrants, a pattern worthy of more study because forced migration often proceeds from initial flight to refuge to further migration in a stepwise fashion that can blur the line between voluntary and involuntary migration. Further, forced migration can forge social networks that encourage later voluntary migration of others (Abbasi-Shavazi & Kraly, 2017). The UN agency for refugees (UNHCR) estimates that as of 2020, 82.4 million people, more than 1% of the world’s total population, consisted of forcibly

**Table 29.3** Countries with the largest diaspora populations, 2019 and 1990

Rank in 2019	Country	Millions of emigrants	Rank in 1990	Millions of emigrants	Percentage change 1990–2019
1	India	17.5	3	6.6	165.2
2	Mexico	11.8	6	4.4	168.2
3	China	10.7	7	4.2	154.8
4	Russia	10.5	1	12.7	–17.3
5	Syria	8.2	>20	0.6	1266.7
6	Bangladesh	7.8	5	5.5	41.8
7	Pakistan	6.3	10	3.3	90.9
8	Ukraine	5.9	4	5.5	7.3

Source: United Nations (2019) (United Nations database, POP/DB/MIG/Stock/Rev.2019)

displaced persons, up sharply in the last decade. Of these, the majority remain within the boundaries of their home state, but 26.4 million are counted as international refugees, 4.1 million as asylum seekers, and 3.9 million as internationally displaced Venezuelans (United Nations Commissioner for Refugees, 2020). The decade-long civil war in Syria accounted for much of this spike in refugees, followed by Venezuela, Afghanistan, South Sudan, and Myanmar, the five countries totaling more than two-thirds of the total number of displaced persons. When displaced persons leave their native country, they tend to remain in neighboring less developed regions. As of 2020, Turkey and Colombia hosted the largest number of refugees, although on a per-capita basis, the island of Aruba has taken in the most, with one Venezuelan for every six Arubans (United Nations Commissioner for Refugees, 2020). Table 29.4 presents United Nations estimates of the refugee stock from 1990–2019.

The war in Syria to date has displaced half of the country's population (13.5 million people, of whom 6.7 million are international refugees), according to the United Nations Commissioner for Refugees (2020). Although the largest receiving country has been Turkey, Syrians have also fled to many neighboring countries. Desperate

refugees bound for Europe headed across the Aegean Sea by the boatload and across the Balkans by caravan. Asylum applications in the European Union spiked to 1.3 million in 2015 and nearly as many in 2016, prompting what many Europeans called a crisis of migration amid fears about security and economic threats (Collett & Le Coz, 2018; Connor, 2017; Greussing & Boomgaarden, 2017). In the wake of this migration, the European Union brokered a deal with Turkey in 2016 to limit the number of refugees in return for a variety of considerations, including six billion euros for refugee assistance, acceptance of some refugees, and reduced visa restrictions for Turkish citizens (Terry, 2021).

Although the Syrian civil war remains notable for the number of migrants seeking to flee to Europe, it is by no means the only source of refugees. By one estimate, the U.S. 'War on Terror' in the wake of the attacks of September 11, 2001, has contributed to the displacement of at least 37 million people, including those in Syria (Vine et al., 2020). That sum exceeds every other war since 1900, except for World War II. Other wars have created refugee movements as well, particularly in Africa. Refugee movements in the Horn of Africa have persisted for more than 40 years, and South Sudan has emerged as a new source of refugees. Repeated ethnic conflict in

**Table 29.4** Estimated size of the stock of refugees and asylum seekers, by region, 1990–2019

Regions by level of development	Estimated total refugees and asylum seekers at mid-year, in millions						
	1990	1995	2000	2005	2010	2015	2019
World	19.0	18.1	16.5	13.8	15.9	24.7	28.7
More developed	2.0	3.9	3.6	2.6	2.2	3.6	4.8
Less developed	16.9	14.3	12.9	11.1	13.7	21.0	23.9
	Estimated percentage of international migrant stock who are refugees and asylum seekers						
	1990	1995	2000	2005	2010	2015	2019
World	12.4	11.2	9.5	7.2	7.2	9.9	10.6
More developed	2.5	4.2	3.4	2.3	1.7	2.6	3.2
Less developed	24.1	20.9	18.6	14.8	15.2	19.5	20.0
	Annual rate of change in stock of refugees and asylum seekers						
	1990–1995	1995–2000	2000–2005	2005–2010	2010–2015	2015–2019	
World	–0.9	–1.9	–3.6	2.9	8.8	3.8	
More developed	12.8	–1.7	–6.1	–3.5	9.8	7.3	
Less developed	–3.4	–2.0	–3.0	4.1	8.6	3.2	

Source: United Nations (2019) (United Nations database, POP/DB/MIG/Stock/Rev.2019)

Rwanda and Burundi have also led to refugee movements, as have conflicts in Myanmar and Central America, although those who have fled have not always been given asylum or refugee status. The failure of the state in Venezuela has created a diaspora across South America and the Caribbean. In 2022, millions of Ukrainians fled an invasion by Russia.

The division of nation-states has also displaced millions of people. The partition of India in 1947 resulted in an enormous “international” migration, with around 12 million people moving between India and Pakistan. The collapse of communism in Eastern Europe in the late twentieth century led to a surge of international migration. Between 1988 and 1996, Germany repatriated 2.3 million *Aussiedler*, i.e., ethnic Germans living in Eastern Europe, as well as 622,000 East Germans who moved to West Germany between 1988 and 1990. The Russian Federation received a large influx of ethnic Russians returning from other countries as well as refugees from ethnic conflicts in the former Soviet states and from other countries (Messina, 1994).

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### **The Demographic Appeal of Immigration to Receiving Countries**

Demographic trends unfolding across the world have affected the labor market and made migration more necessary for the more developed countries. In the world’s major immigrant-receiving countries – the United States, Canada, Western Europe, the United Kingdom, Australia, and New Zealand – the fertility rate among native-born women has remained for decades below the level needed to replace the population. This dwindling fertility rate represents the culmination of demographic processes that began in the nineteenth century, when improvements in public health, nutrition, and living conditions in Europe and North America began to reduce infant mortality and urbanizing couples saw less need for children to provide household labor and an old-age safety net. Early demographers called this process of decreasing mortality leading to

decreasing fertility as the demographic transition. But conceptualization of the end of this process always remained underdeveloped, so an equilibrium in which fertility and mortality rates balanced each other and led to stable population size remained more of a heuristic construct than a scientific prediction.

By the late twentieth century, fertility rates in many developed countries had fallen well below replacement level of 2.1 children per woman. At the same time, more women were entering the workforce and postponing or even forgoing marriage. In some countries, especially in Northern Europe, the percentage of births outside of wedlock was rising. Policy attempts to raise the birth rate through tax incentives, childcare, and other programs showed minimal efficacy. Some demographers responded by postulating the rise of a *second* demographic transition, notable for its emphasis on economic autonomy for women, self-actualization, and cultural shifts (Lesthaeghe, 2010). For them, the rise in secularization, childlessness, and alternative household types was sufficiently notable to justify a distinction from the original demographic transition.

Absent other factors, the second demographic transition implies two vast and inevitable demographic shifts. The first is the aging of the workforce and the population as a whole, as successively smaller cohorts of babies are born and the larger cohorts retire. This trend is happening now across most of the more developed world and especially quickly in China (Lee, 2020). In Europe, the aging of the population is further along than in Asia but will not progress as quickly. Even so, a quarter of Europe’s population will be over 65 by 2050 (He et al., 2016). The second shift consists of the inexorable result of this aging: outright population loss in the long run. Japan and Russia are experiencing annual population declines as of 2020 at 0.3 and 0.2%, respectively, with steeper declines projected over the next few years (U.S. Bureau of the Census, 2020). The lower the birth rate, the more rapidly these shifts will occur.

Of course, many countries in Europe and North America with below-replacement fertility rates have forestalled dramatic population aging

loss through widespread immigration (Brown et al., 2019; Coleman, 2006). In the United States, for instance, with fertility rates only slightly below replacement level and high migration levels for decades, the workforce is projected to grow by ten million between 2015 and 2035. That growth, however, is much lower than before. Within Europe, slightly differing scenarios have emerged from variation in how low fertility rates have fallen and in how many immigrants are admitted. In northwest Europe, near-replacement fertility and substantial sustained migration imply long-run growth and slower aging of the population. In the German-speaking countries and much of Southern Europe, where the fertility rates are lower but migration rates remain high, the population size is likely to remain steady or grow slowly. In fact, in Switzerland in 2011, migrants accounted for 81% of the total births (Coleman, 2013). In most former Soviet bloc countries and the Balkans, low fertility and high out-migration portend population decline.

Immigration generally diversifies population along ethnic lines and often along religious and racial ones as well. Coleman (2006) considers these transformations in population composition because of immigration so large-scale and so socially and culturally profound (and controversial) that they warrant the designation of a *third* demographic transition. While this term has yet to achieve widespread usage, the implications of a real need for immigration in advanced economies combined with low fertility have caused political firestorms. It is indisputable, though, that absent immigration and the fertility rates of immigrants, many industrialized economies would be considerably older and smaller.

In the U.S. case, four circumstances show how the number of jobs outpaced the growth of the native population. First, for much of the last 60 years, economic growth in the U.S. overshot population growth. In the 1970s, the U.S. economy generated more than 1.9 million jobs per year, far more than needed to absorb the Baby Boomers, then coming of age, and immigration at the time. In the 1980s, the economy averaged about 1.8 million new jobs each year, and in the 1990s, more than 2.1 million. The

pattern reversed in the first decade of the millennium, with population growth surpassing job growth even before the Great Recession struck in 2008. However, from 2010 to 2019, annual job growth returned to the pace of the 1990s, well ahead of population increases (U.S. Bureau of Labor Statistics, 2020). Thus, for most of the past half century, job growth has outpaced population growth. Second, sub-replacement fertility ensures low population growth. The United States has fallen below replacement level fertility every year since 2007 and has continued to hit record lows (Hamilton et al., 2021). Third, gains in education reduced the number of native-born, less-skilled workers. In 1950, only 5.3% of U.S. adults age 25 or older had any education above high school. By 2018, it was 55.3% (Ruggles et al., 2020), and 32.7% held a bachelor's degree or more. While about a third of college graduates do not hold jobs that require a degree, even those jobs are much more likely to be higher wage than lower-wage (Federal Reserve Bank of New York, 2020). Between 1990 and 2010, the size of the native-born workforce ages 25–44 with a high school diploma or less declined by more than 4 million men and 8.2 million women. That loss was only partly offset by immigrants with comparable educations: 3.8 million men and 2.5 million women (Bean et al., 2015a). Many of the jobs they hold are in the service industry or 'gig economy', with low pay and few benefits, and less-skilled men have increasingly left the labor force (Juhn and Potter, 2006). Yet many of their jobs remain critical. Among those workers deemed "essential" in the coronavirus (COVID-19) pandemic, 39% have a high school education or less (McNicholas and Poydock, 2020). Last, the gradual retirement of the enormous Baby Boom cohort is reducing the size of the overall workforce, both skilled and less-skilled. The Baby Boom period began in 1946 and lasted until 1964 and was noted for its unprecedented uptick in annual fertility rates. Those born in its peak year, 1957, will turn 65 in 2022. Although more educated Boomers have tended to stay longer in the workforce, 2.2 million Boomers a year have been exiting the labor force every year since 2010 (Fry, 2019).

## Economic and Fiscal Reasons for Migration

The emergence of a third demographic transition suggests that for the most part, immigrant labor is not competing with native workers but filling critical gaps in the workforce and thus is vital to maintaining the economy. Some immigration arguments in the past held that immigrants accepted the less desirable jobs that natives had forgone or moved to places those natives had avoided. Those arguments implied two points that have often failed to stand scrutiny: first, that natives were available to take those jobs in the event a host nation barred immigration, and second, that the quantity of labor required is fixed, an assumption known as the ‘lump-of-labor’ fallacy. For at least three decades, the evidence has run counter to these arguments. Outside of recessions, the birth rates of advanced countries have been too low to produce a workforce sufficient to take all the available less-skilled work (Bean et al., 2015a). While some have argued that employers prefer immigrant laborers to native workers to keep wages low and workers under control, evidence in the United States suggests that the size of the less-skilled workforce has diminished so much, even as the need for essential workers continues, that natives alone could not fill the demand for less-skilled jobs. Moreover, higher immigration tends to be associated with higher native wages, even for less-skilled natives (Peri, 2017; U.S. National Academies of Sciences, Engineering and Medicine, 2016; Holzer, 2011). Thus, from an economic standpoint, immigration appears to benefit the native workforce overall, if not every member. Those most in competition with newly arrived immigrants appear to be the earlier-arriving immigrants and natives who did not finish high school (U.S. National Academies of Sciences, Engineering and Medicine, 2016).

From a net fiscal standpoint, the cost of immigration is even harder to determine, in part because of the assumptions necessary to make long-term, dynamic estimates and in part because choices made in allocating the cost of shared public goods, like interest on national debt or the defence budget, make a large difference in

the results. In the United States, the size of the national deficit means that neither natives nor immigrants pay enough to cover spending. In general, the first generation of immigrants does not pay as much in taxes as later generations, because the latter have more education and earnings. However, the proportion of skilled immigration in the United States is rising, so the relative costs of the first generation are going down (U.S. National Academies of Sciences, Engineering and Medicine, 2016; Orrenius, 2017).

In addition, costs are borne at a variety of government levels, but tax revenue from immigrants may not reach each level equally. Over the long term in the United States, the federal government gains a net benefit from immigrants’ taxes, whereas immigrants cost states and local governments. That is because the federal government pays for Medicare and Social Security and thus underwrites the costs mainly of the elderly, while state and local governments typically pay for education and may not recoup those costs if the children they have educated relocate as adults. Immigrants and their children cost states and local governments, in part because of immigrants’ higher fertility, but the next generation changes the calculus. Between 2011 and 2013, U.S. states *spent* USD 1600, on net average, on first-generation immigrants and their dependent children, with substantial variation across states; by contrast, the second generation and their children *contributed* about USD 1700, and the third generation *contributed* about USD 1300 (U.S. National Academies of Sciences, Engineering and Medicine, 2016). Yet because the gap between revenues from immigrants at the state and local level is growing, states have an incentive to set policies that discourage immigrant settlement.

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## International Migration Theories

Although immigration as a phenomenon is shaped by state policies (Joppke, 1999; Zolberg, 2006), individuals and their households make the actual decision to move. Rarely do voluntary



migrants just depart without a destination in mind – they decide to move to some specific place, perhaps with the idea of moving again later. At some level, migrants must consider the demographic, social, and economic factors of the destination as well as the chance to be reunited with family and friends. At the same time, they also consider state policies that create barriers to free movement. No single migration theory neatly explains all these contingencies nor the flows among sets of countries. Migrants are diverse, and different conditions can elicit different waves of migrants. To encompass this interplay of the effects of policies and personal decision-making, explanations for migration flows usually draw on multiple perspectives that cross disciplines to show how theories work together and are dependent on historical context, showing how various theories depending on historical contexts combine to elucidate the nature and size of migration flows (Massey et al., 1998; Garip, 2017).

International migration theories originally developed from perspectives on internal migration. The ‘push-pull’ model (Heberle, 1938; Lee, 1966) of migration was an early and especially influential framework. It argued that potential migrants consider the advantages and disadvantages of their homeland versus their perception of the advantages and disadvantages at the destination and, after then weighing the costs to their migration, make a decision. All these considerations and barriers are loosely defined and could entail policy-based, economic, social, psychological, or demographic factors. The push-pull model also considered the costs of not migrating, including such unanticipated and unmeasurable factors as nostalgia. Migrants also must contend with the costs of living at their destination, such as higher prices for rent, food, clothing, and possibly transportation (Grasmuck & Pessar, 1991; Hagan, 1994; Hondagneu-Sotelo, 1994). Adjustments to a new country can also change migrants’ social status, positively or negatively. For instance, compared with conditions in countries of origin, the relative position of women may rise in the destination countries, so that women may be more likely

than men to want to stay in the destination country (Hagan, 1994; Hondagneu-Sotelo, 1994).

The fluidity of the push-pull model makes it versatile but ultimately unable fully to explain the patterned nature of migration produced by historical ties, structural inequalities, and past migrations, deficiencies that led to the development of new perspectives. This section examines some of these well-known theoretical perspectives, at macro-, meso-, and micro-levels, that emphasize the forces that drive international migration (Garip, 2017; Massey, 1999; Massey et al., 1998). These theories point to different but complementary factors that affect migration, the characteristics of migrants, and the nature of destination societies that attract them.

### Neoclassical Economic Theory

In macro-level terms, migration stems from imbalances among countries, or even subregions, in the supply of and demand for labor. These imbalances lead to wage differences that spur migration so long as the imbalances remain (Borjas, 2014; Harris & Todaro, 1970). At a micro-level, the neoclassical perspective is reminiscent of push-pull theory but different in that it assumes rational calculations by individuals of the benefits, usually economic, of a move in relation to the costs (Todaro & Maruszko, 1987). Migrants estimate how much they might earn over their expected length of stay at their destinations (Borjas, 1990). Some migrants plan for a short time frame, through temporary or circular migration, while others plan to settle permanently. One analysis of long-term Mexican migration to the United States found that the type of migrants who focused on maximizing their incomes were most prevalent in the 1970s and often consisted of rural men in agriculture with families and little education (Garip, 2012). Migration for them was an investment strategy for individuals seeking to maximize the returns to their labor, subject to the costs of migration, including the cost of attaining a visa or, for those without a visa, the chance of capture and deportation. Policies aiming to deter labor

migration by raising the associated risks or by investing in the origin country appear to have had relatively little success (Cornelius, 2001; Clemens & Postel, 2018).

One variant of microeconomic theory, human capital theory, focuses on the returns to investments in human capital, or knowledge and skills. Young people invest in education because they expect a return on that investment over their working years (Becker, 1964), in much the same way as migrants invest in moving to the labor market in a different country. The concentration of larger multifaceted universities in the more developed countries may spur migration, as returns to education are often higher there. By moving to countries with better schools and more developed labor markets, migrants can enhance their investment in human capital and increase the likely return to that investment. Thus, human capital theory seeks to explain why countries like the United States attract so many well-educated migrants and cause a ‘brain drain’ from other countries (Massey et al., 1998). This perspective also helps explain the selectivity of many migration streams, because the return to investment is greater for those with more skills.

### **New Economic Theories of Migration**

Some theorists (Stark, 1991; Taylor et al., 1997) have argued that microeconomic theories should be grounded in larger social arenas than just the individual. They stress how migration decisions depend not on the labor market alone but also on the household members of the migrant. Because such broader household economic theories focus on household-wide responses to economic conditions, these perspectives can explain how migration can be circular or temporary, especially when some family members remain at the place of origin. These explanatory capabilities contrast with the neoclassical theory, which requires macro-level shifts or changes in migration time horizons to account for return migration.

At the community level, this perspective also holds that migration is more likely in a context of unequal social rank and income. Absolute

poverty in a community might leave residents unable to migrate or unaware of the potential gains from migration. By contrast, a sense of relative deprivation can inspire some members of a household to migrate because they see how other households have benefited from migration. And because the reference group for migrants is compatriots in the homeland, not persons at the destination, migrants will often accept poorly paid work at the destination so long as the wages compare favorably with those at the origin.

Another aspect of new household economic theories is their emphasis on minimizing household risk in addition to raising overall income. Because of lack of access to investment capital and insurance markets, natural disasters, and crop failures can devastate origin communities. To minimize the household risk, households may diversify their income as a kind of insurance policy, by sending one or more family members to foreign labor markets to reduce overall financial vulnerability (Massey, 1999; Massey et al., 1998). Remittances from these migrants are generally used for consumption, with some reinvested in family farms or businesses (Lozano-Ascencio, 1993; Taylor et al., 1997). If remittances are invested, they can raise household income by more than their face value, in a multiplier effect (Taylor, 1992). Worldwide, in fact, the flow of remittances amounts to 1.7% of GDP in the less developed countries (Ratha, 2005).

### **Network Theory**

Network theory expands further on the idea that migration decisions are embedded in social contexts. At the micro-level, network perspectives seek to explain how connections among actors influence migration decisions, such as linking potential migrants to friends and family who have already migrated. Indeed, Charles Tilly’s observation (1990: 84) that “*networks migrate*” suggests that a fruitful unit of analysis is also the network rather just than the household or the individual. So long as state regulations permit network migration, it can lead

to rapid growth in immigration. In fact, once large numbers of people have migrated from one particular location to another and back again, a process known as cumulative causation can ensue through multiple ties back to communities of origin to facilitate ongoing and at times increasing migration (Bachmeier, 2013; Massey et al., 1993).

To enable these large-scale migrations, entrepreneurs, voluntary organizations, and institutions also arise. The demand for visas so often outstrips their availability that a gray market may develop for recruiting, labor contracts, smuggling of people, counterfeit documents, arranged marriages, and other types of assistance (Massey, 1999). Voluntary organizations may try to aid exploited immigrants and help them find social and legal services. These intermediary institutions are often exploitative but also provide immigrants with services they would not otherwise find (Agunias, 2009).

Network migration theory thus provides advances over neoclassical theory in explaining how migration continues once push-pull factors have diminished. Networks serve at least three functions. First, migration networks provide opportunities for exchanging information. This knowledge may be critical, because neoclassical models assume, often incorrectly, that potential migrants know the relative price of labor between their home country and their desired destination. Because of their networks, they may learn about a given job at a given wage, and must use this information to decide whether migrating represents a worthwhile opportunity in the destination labor market (Sassen, 1995). Second, networks enable migrants to build trust, because the immigrants are embedded in communities both at the origin and destination that can enforce that trust. Trusting relationships allow migrants to minimize the risks of moving to foreign lands (Granovetter, 1985, 1995). Third, the totality of the contacts with friends, families, and employers that form a network provide immigrants social capital, or access to resources and social support. Growth of these ties thus represents an important element in the migration process, because they increase social capital (Massey, 1990; Massey & Espinosa, 1997; Hagan et al., 2015). This social

capital is fungible in that it can be converted to other forms of capital, including wages (Portes, 1995). For example, survey data for ten sending communities in Mexico show that social capital, or family connections, raised Mexican immigrants' incomes, wages, and hours of work once they were in the United States (Donato et al., 1992). Despite these advantages, network ties among immigrants can deteriorate because of the persistence of poverty, and immigrants may become vulnerable to exploitation by co-ethnics (Portes & Sensenbrenner, 1993; Mahler, 1995; Menjívar, 2000).

### Labor Market Segmentation Theory

Labor market segmentation theory in the late twentieth century moves away from individual- and meso-level theories to historical-structural explanations of migration, with a focus on the labor needs of industrialized countries. According to dual labor market theory, in more developed countries firms and their employees are stratified into primary and secondary sectors. The primary sector consists largely of larger and more established firms that offer more capital-intensive, steady, higher-paid, and desirable jobs for skilled workers. The secondary sector serves fluctuating or seasonal demands and relies primarily on lower-paid, labor-intensive jobs (Averitt, 1968; Massey et al., 1998; Piore, 1979; Tolbert et al., 1980). Segmentation theorists emphasize that barriers between the primary and secondary sectors inhibit upward mobility across sectors and stifle wages. Thus, the working conditions in such industries as meatpacking and agriculture deter native-born workers from taking these jobs. In recent years, moreover, the pool of native-born workers who might take such jobs has shrunk because more women have entered the primary sector, because birth rates among natives have fallen below replacement levels for decades, and because young people are getting more education (Bean et al., 2015a). Immigrants, however, are often willing to fill such jobs, especially if they expect to stay in the receiving country for only a short time (Piore, 1979).

Employers in secondary sectors may also contribute to labor segmentation through their means of finding reliable workers. Because employers face a constant demand for less-skilled workers to fill arduous jobs, they may have trouble finding enough legally admitted immigrant workers and so turn to irregular labor markets. In smaller industries, ascriptive characteristics such as gender, ethnicity, or nativity may also affect hiring practices and lead to a hierarchy, or queue, of preferences for certain kinds of employees. Having found a few productive immigrant laborers from a given group, employers may stereotype members of that group as hard-working and seek more employees from that same group, especially when these potential employees are referred by current employees (Waldinger, 1996; Bailey & Waldinger, 1991).

Nonetheless, by the twenty-first century, describing the economy in terms of two sectors seems too limited. The growing returns to capital (Piketty, 2014), rising inequality, and the growth of the gig economy indicate that much of the work available to natives as well as immigrants is precarious as well. The lack of protections in the gig economy parallels those experienced by immigrants and suggest the economy now is more of a continuum across all workers rather than a dichotomy (Saucedo, 2017). Nonetheless, very low wages in sectors like agriculture and the grueling nature of the jobs have continued to put off native workers. As of 2006, only 23% of agricultural workers in the United States and only 2% in California were native-born (Taylor et al., 2012).

## World Systems Theory

In world systems theory, states become drivers of migration. This macro-level approach derives from historical-structural theories of less developed countries' dependencies arising from the labor and resource needs of wealthier countries, whose terms of trade enabled them to accumulate capital and develop at the expense of poorer countries. In the 1970s and 1980s, world systems theorists argued that "core" countries dominated

the world economy by linking "peripheral" countries into capitalist economies and an expanding range of multinational corporations (Furtado, 1964; Wallerstein, 1983). Within these more developed countries, core cities like New York, Los Angeles, or London control worldwide financial and labor markets and commodity chains. This pattern evolved through destabilization of rural areas of poor countries as the introduction of mechanization and consolidation of farms led to rural-urban migration of dislocated workers. Women in particular gravitate to jobs in labor-intensive production industries set up by multinational corporations to take advantage of low wages. Such workers often stay only a few years and, having been already uprooted once, tend to become migrants (Massey, 1999).

Ultimately, these urban migrants often become international migrants, especially in the richest core cities with the strongest financial and production links to the origin (Sassen, 1988; Waldinger, 1996). Old colonial relationships forged many ties between individual migrant-sending and receiving nations, and the rise of the global economy only strengthened these linkages. For example, migration streams from the Caribbean tended to flow toward former colonial powers, Jamaica and Barbados to the United Kingdom, Puerto Rico to the United States, the French Antilles to France, and Suriname and the Netherlands Antilles to the Netherlands (de Haas et al., 2020).

The predictions of world systems theory help explain why certain migrants fill certain types of jobs at certain times in global cities. A thriving export market for garments made in Turkey grew steadily, for example, because of the availability of female labor across multiple contexts: as unpaid labor in family-owned garment shops, as highly supervised underage labor, and as underpaid and vulnerable visa overstayers from Azerbaijan (Dedeoglu, 2014). In an ironic example, garment manufacturing that had left much of the United States grew in Los Angeles in the 1980s and 1990s, because of massive immigration to Los Angeles from Asia and Latin America and the creation of a commodity chain linking Asian and Latin American production of

garments to U.S. sellers (Loucky et al., 1994). The arrival in the 1980s of large numbers of immigrants lowered U.S. labor costs and made domestic production feasible through small shops often run by Asian immigrant entrepreneurs employing a mostly immigrant workforce (Appelbaum & Gereffi, 1994). The garment industry thus exemplifies the ties between large-scale international migration and global chains of production.

A criticism of world systems theory is that it tends to view migrants, especially women, as entirely constrained by structural circumstances and to idealize their backgrounds as stable, when many of these people traditionally had faced upheaval from inequality, high mortality, and internal conflict. As de Haas et al. (2020: 52) point out, to view migrants merely as “*passive victims of capitalism*” is as unrealistic as the neo-classical version under which migrants make entirely rational decisions without external constraint. Peasant societies have long been mobile.

### Political Economy Theories

In recent decades, world systems theory has broadened into approaches that look more at globalization and the liberalization of markets, with the transfer of production to much of the global South because of lower labor costs and the rise of inequality within industrialized nations. International institutions like the World Trade Organization (WTO) and treaties like the North American Free Trade Agreement (NAFTA) undergirded this neoliberal economic world order that protected the rights of capital. Under Hollifield’s (1992) theory of hegemonic stability, the world’s economic system depends on the political and military might of dominant states. As early as World War II, the Bretton Woods agreement set up an international currency regime pegged to the USD and led to the founding of the International Monetary Fund and the World Bank. Bretton Woods was followed by the General Agreement on Tariff and Trade (GATT) in 1947, which eventually gave rise to the World Trade Organization. The European

Union and NAFTA represent formal attempts by Western powers to establish structures and institutions to influence and regulate the global economy, with the Asia Pacific Trade Agreement recently operating in the Pacific.

Hegemonic states maintain the neoliberal economic order not only through global trade and finance, but through migration as well. In times of labor scarcity, they have developed elaborate though temporary labor importation programs, such that by 1973, between 10% and 12% of France and West Germany’s labor forces consisted of temporary foreign workers, and Switzerland’s labor force reaching as high as 30% foreign-born (Salt, 1981). In the United States, the *Bracero* program that ran from 1946 to 1964 led to the admission of 4.6 million temporary agricultural workers from Mexico (Calavita, 1992). The rise in the price of oil in the 1970s gave the Gulf states enough money to begin rapid development and construction projects requiring ultimately millions of temporary foreign workers, first from other Arab-speaking countries, then from South Asia, in such numbers as to change the age composition of these countries (Rajan, 2019). Such trends show how receiving countries often aim to control immigration through temporary visas, although these flows often lead to settlement of migrants through visa overstays.

The myriad migration theories set out above customarily apply to voluntary labor migrants and not refugees or asylum seekers, in large part because the fields of refugee and asylee studies developed separately from migration studies. However, aspects of these theories apply to refugees. Most obviously, theories involving state influence and world-systems dynamics are relevant for refugees, who generally flee because of state action (or inaction). Refugees from war in peripheral countries may end up in core nations that were involved in the war, as in the case of Vietnamese and Afghans fleeing the fall of their country’s regime. But refugees more commonly stay in peripheral countries, which get funding from core countries and often other incentives to retain refugees within their own borders, such as the agreement between Italy and Libya in 2017 to

keep refugees from leaving Libyan shores (Vari, 2020). Such agreements intertwine refugee displacement and immigration and create “a *global system of mobility control*” (FitzGerald & Arar, 2018: 395). Economic theories may also apply to refugees. Even if refugees’ initial departures had no economic impetus, they often move on a second or even third time. For these later moves, household-level economic considerations can guide their decision-making as they try to reduce further risk. They may also tap social networks and social media to find employment (FitzGerald & Arar, 2018).

### Immigration Policy Perspectives

As for perspectives regarding immigration policy theory, two distinct camps have emerged (Boswell, 2007; Natter, 2018). In the political economy perspective, of which Freeman (1995) is a well-known example, policymakers in democratic states respond to lobbying by the most well-organized interest groups. With respect to immigration, their response pattern resembles “client politics”, because the benefits of immigration accrue to powerful industries that depend heavily on less-skilled labor, while the costs of immigration are diffuse and borne mainly by taxpayers as a whole and, more specifically, by the less-skilled workers against whom immigrants would compete. The result leads to liberal immigration policies. In this framework, national policymakers act in concert and respond passively but directly to interest groups rather than acting as independent agents (Boswell, 2007).

By contrast, institutionalist perspectives emphasize bureaucratic structures, intra-agency jurisdictional claims, and the legacy of historical context and earlier policies. Joppke (1999), for instance, argues that Britain’s Home Office can control immigration policy better than the executive branches in Germany or the United States because it faces no judicial or constitutional challenge. He points out as well that immigration control is also harder in Germany and the United States for historical and cultural reasons, i.e.,

Germany’s reckoning with its history creates resistance to questioning asylum seekers, and the U.S. remains resistant to internal controls. Brubaker (1992) shows how historical contingencies in France and Germany have shaped their immigration policies, and how immigration policies, in turn, can help to strengthen national identity. Other theorists (Guiraudon, 2003; Natter, 2018) note that the bureaucratic institutional interests within states may deliberately seek to set policy through international treaties. In democratic states, doing so can circumvent the gridlock of domestic politics. In more autocratic states, immigration policy may serve to advance foreign policy and mollify crucial trading partners.

### Global Trends in Migration Policies

In the last few decades, two notable and seemingly countervailing migration trends have emerged, one toward greater liberalization, human rights, and globalization, and the other toward greater restrictions on immigrants and the criminalization of immigration. This “*liberal paradox*”, as Hollifield et al. term it (2014: 8), involves the question of how states can add workers to ensure economic growth and maintain enough closure and control to sustain the social contract with their citizens. Ruhs (2013) capsulizes the debate by arguing that there exists an inherent tradeoff in the quantity of migrant workers admitted by more developed nations and the quality of the rights that those nations bestow. He argues that for less-skilled workers, equality of rights comes at the price of more stringent admissions policies.

The liberal turn began with the Universal Declaration of Human Rights in 1948 and continued in the United States with the civil-rights movement. Feeding this liberalization has been the rise of social movements, judicial activism, and a move toward ensuring the rights of ethnic minorities. In 1990, the United Nations crafted the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families, designed to anchor an international campaign for preventing human-rights

abuses. However, after more than 20 years, no high-income countries had adopted it (Ruhs, 2013). More promisingly, in 2018, 152 nations signed the UN Global Compact for Safe, Orderly and Regular Migration, which calls for international cooperation in migration and further emphasis on human rights and due process (McAdam, 2019).

Indeed, in the 1990s, many scholars (notably Freeman, 1995 and Joppke, 1999) argued that after the fall of the Soviet bloc, immigration would become more liberal, with higher rates of naturalization. Eastern Europeans gained the right to leave their countries in a significant expansion of the long-term liberalization process by which states, beginning with the French Revolution, have come to view emigration as a human right (de Haas et al., 2020; Zolberg, 2007). Globalization, the freer movement of capital, and the passage of treaties like GATT have led more borders to open to immigrants as well. Migrants have more access to dual citizenship (Kivisto & Faist, 2010; Faist, 2010). Many origin states now reach out to their emigrants and their children through diaspora engagement policies not only to maintain ties but to encourage investment and remittances and garner political support (Gamlen, 2014). Legal residents now also enjoy many of the same civil, social, and economic rights as citizens, thanks to court rulings in the late twentieth century in the EU and United States (Brubaker, 1989; Joppke, 1999). On a multinational level, some nations have formed compacts allowing free movement of their citizens. For example, in 1979, the Economic Community of West African States set up a protocol to open its borders and a common market among member states, and enabling integration. Since 1995, the states signing the Schengen Agreement in the European Union have permitted people, goods and services, and capital to move freely.

At the same time, control over entry of immigrants falls under the unquestioned prerogative of the state. Under the Convention of The Hague in 1930, states have the right to confer citizenship. The Convention on Refugees from 1952 prescribed the right to leave a state as

universal but omitted any right to entry (Sassen, 1996). The granting of asylum remains at the discretion of a state. Thus, despite the rulings and agreements making legal residency more secure, states may undermine them or pass immigrant policies that curtail benefits. For example, the United States limited immigrants' access to social benefits in 1996 and offloaded much of the responsibility for benefits onto individual states. Different members of the Schengen Agreement reinstated border controls during the Syrian refugee crisis. The West African protocol, never fully implemented, did not account for such external events as the oil recession hurting the Nigerian market nor the Boko Haram terrorists (Okunade & Ogunnubi, 2021).

Because of greater numbers of immigrants and the growing need in Western countries for immigrant labor, both low-skilled and high-skilled, immigrants are more visible and immigration policy more vulnerable to a public backlash. The pluralistic growth in institutional actors invested in immigration as well as the evolution of far-right parties opposing migration makes state-level immigration policy much more contentious. States have increasingly criminalized irregular migrants and detained asylum seekers and set up a complex of public and private institutions to control migration (Amuedo-Dorantes & Arenas-Arroyo, 2018; Gerard & Pickering, 2013).

Still, the degree to which states truly controls the number, type, and skill level of immigrants remains a debate among political scientists, particularly over the gap between immigration policy and its enforcement (Hollifield et al., 2014). The gap may reflect the exigencies of setting policies (Cornelius & Tsuda, 2004). Or it may reflect a deliberate choice, such as the U.S. decision to set firm immigration quotas in 1924 while still allowing a porous border (Zolberg, 1999). The gap may also allow states to satisfy multiple constituencies at once, by placating public opposition to immigration with laws whose weak enforcement serves state interests (Boswell, 2007). While this gap exists worldwide, it is by far the largest in the United States, whose long border with Mexico, history of

agricultural labor migration, and longtime willingness to neglect enforcement of hiring laws resulted in millions of unauthorized immigrants (Martin, 2014).

At the same time, state policies absolutely define immigrant policy, the level of rights enjoyed by various classes of immigrants, even if states feel pressure from their international or internal constituencies (Cornelius & Rosenblum, 2005). Immigrant policies classify migrants, fundamentally, as legal or unauthorized, but also more broadly as citizens, permanent residents, or aliens, and provide a level of rights with each. For statuses that are temporary or have fewer rights, the policies may be definitive but still inconsistent and unclear, causing uncertainty (Menjívar, 2006). The distinction between citizens and non-citizens lies a continuum depending on the nation, the degree of rights, and prevailing ethno-racial hierarchies (Chauvin & Garcés-Mascreñas, 2012).

The problem of neatly categorizing all these immigration trends has occupied political analysts for decades. No single categorization is ideal, since breadth in categorizations invariably involve data that are harder to compile and compare accurately. Nevertheless, frameworks provide a useful heuristic for contrasting immigration policies. Boucher and Gest (2018) take a provocative twist on categorization by using demographic data to examine the outcomes of different mixtures of historical contingencies and immigration policies (as opposed to the just policies themselves). In doing so, they identify these types of modern immigrant-receiving regimes:

1. Neoliberal: Australia, New Zealand, Canada, and the United Kingdom. These states, all of them originally settler states except for the UK, emphasize labor migration from diverse origins and widespread use of temporary labor visas. Canada has especially high rates of naturalization.
2. Humanitarian: The United States, Finland, and Sweden. These states focus less on labor migration and more on family reunification or humanitarian needs. Finland and Sweden make welfare benefits accessible upon their arrival. Family reunification policies ensure that immigrants arrive with intact social networks into which to integrate.
3. Intra-Union: Germany, Switzerland, Austria, the Netherlands, Norway, and Denmark. These states receive high levels of immigration from within the European Union but little outside it (though Norway is not in the EU but is in the European Economic Area). Migrants who cannot find jobs are expected to return home and may get smaller welfare benefits.
4. Extra-Union: Belgium, France, Ireland, Italy, Portugal, and Spain. While these states also attract EU migrants, more of their immigrants come from outside the European Union, mostly from states linked through colonialism. A few of these countries may attract migrants by virtue of their location on the European periphery. Comparatively few of their migrants are temporary.
5. Constrained Regimes: Brazil, Mexico, Japan, and South Korea. Migration flows in these countries tend to be small and temporary. Humanitarian settlement is negligible. Except in Brazil, few people naturalize. The large economies of Japan and South Korea are constrained by aging, relatively ethnically homogeneous populations widely opposed to immigration. In the traditional settler states of Mexico and Brazil, the economies and politics are less stable and therefore less appealing to migrants. Mexico has many unauthorized migrants, either in transit to the United States or settling there.
6. *Kafala*: Bahrain, Kuwait, Oman, Saudi Arabia, and (most likely) Qatar and the United Arab Emirates. *Kafala* refers to a sponsorship system of very high temporary labor migration under which employers control their workers, who are expected to sequester themselves while in the host country and then return to their countries of origin. Although these countries have the highest proportion of migrants to natives in the world, hardly any naturalize.
7. *Quasi-kafala*: China, Singapore, and Russia. These countries also consider migrant workers



as temporary human capital but use much smaller proportions of them. Citizenship is mostly closed, for different reasons. Singapore, for instance, is a dense city-state concerned over population size.

In looking at the overall number of migrants and migration regimes, Boucher and Gest (2018) conclude that migration worldwide is growing but becoming more transactional. In more than half of the countries they studied, the majority of migration flows consisted of temporary migrants, and not only in countries practicing *kafala*. This “market model” of migration emphasizes hiring flexibility over long-term investment in immigrants in ways reminiscent of the Guestworker programs of the mid-twentieth century. At the same time, the temporary nature of the migration appeals to politicized nativist sectors that oppose large-scale migration of racially and culturally different groups. The United Nations recognized the reality of temporary migration in 2005 by calling for liberalization of international labor migration through temporary migration programs, while also calling for a rights-based approach to migration. The International Labour Organization of the United Nations also acknowledges that some rights, such as family reunification and social protection benefits, would be limited under such temporary migration programs (Ruhs, 2013).

These tradeoffs can occur at many levels. For example, the Intra-Union countries generally restrict immigrant but offer expansive rights to immigrants. Quasi-*kafala* countries may restrict both immigrants and rights. Policies may vary according to the country of origin of the migrants (e.g., the Trump Administration’s short-lived ban on immigrants from seven predominantly Muslim countries) or according to categories of migrants. In general, immigration policies operate within four different and wide-ranging arenas (de Haas et al., 2020):

1. Border controls that keep irregular migrants and potential asylum seekers out of national territory. Typical measures include physical barriers, such as walls, cameras, and border

guards; travel visas; identification documents such as passports; travel bans based on citizenship or religion; sanctions against airlines and other carriers for transporting people lacking the correct documents; employer sanctions against unlawful hiring of immigrants; sanctions to prevent irregular migration through fraudulent documents or use of smugglers; and detention of migrants before deportation. The efficacy of these may vary, because governments may choose to enforce policies like employer sanctions only lightly. In addition, the policies may backfire. For example, rising border enforcement between the United States and Mexico reduced the circular migration between the two countries and led to greater permanent settlement north of the border by unauthorized migrants (Massey et al., 2016).

2. Legal entry and stay policies and regularization of migrant groups. Examples of such policies include recruitment programs between governments or between governments and agencies; requirements for entry visas; requirements for work visas; quotas for types of workers; the introduction of points-based systems for labor migration; regularization programs for unauthorized migrants; procedures for analyzing asylum claims; refugee resettlement programs; and reciprocal agreements among states for admission and residence of one another’s citizens. These policies, too, may have unintended consequences. The Hart-Celler Act of 1965, which abolished the 40-year-old national-origins quota system in the United States, was targeted primarily as a limited measure for Europeans but has profoundly reshaped American immigration from Asia, Africa, and Latin America (Bean et al., 2015b).
3. Integration policies that determine the rights after entry and address how migrant groups and natives come to resemble one another. These policies may include access to education and social welfare benefits; access to the justice system; the right to vote; policies against discrimination; access to language,

housing, and cultural programs; procedures for obtaining permanent residency; and policies by origin countries to engage their diasporas. Many of these policies are contingent upon legal status.

4. Exit policies for voluntary departure or deportation. Such policies may include financial or programmatic assistance to return; policies to detain and deport unauthorized migrants in conjunction with a return country; and conditions for or bans on exit, the latter of which still exist for citizens of authoritarian states. For the most part, however, exit policies pertain now mainly to migrants.

In terms of overall trends, migration policies liberalized in Western countries since the second half of the twentieth century, but at a slower rate in more recent years (de Haas et al., 2018). Since 1989, entry and integration policies have continued to ease, but policies on border control and exit (and thus, on unauthorized migrants) have hardened. As a result, the trend is moving toward greater selectivity in migration as opposed to greater restrictions.

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## Conclusion

The demographic and economic need for immigration across much of the more developed world has grown ever clearer in the face of declining birthrates and aging populations. In many states, the number of workers, both skilled and less-skilled, does not match the growth in jobs. At the same time, rising immigration brings challenges to national identities and can foster political backlash. In a general liberalizing world in which immigrants are guaranteed some degree of international human rights, many states are responding cautiously. Through specialized visas, they have enabled the easy migration of some migrant categories, such as students and skilled labor. Yet for less-skilled workers, more states, both Western and non-Western, are emphasizing transactional policies of temporary migration instead of encouraging permanent settlement. Controls on irregular migration have

grown, both at the level of individual state actions and multinational treaties.

The efficacy of immigration policies can be hard to determine, for several reasons. A gap between a policy and its enforcement is sometimes deliberate, to assuage different political constituencies. A restrictive policy may work but have unintended consequences, such as making permanent migration flows that had previously been circular. And changes in immigration policy tend to take a long time to enact (Hatton & Williamson, 2005). For example, in 2001, the U.S. Congress introduced the Development, Relief, and Education for Alien Minors (DREAM) Act, a bipartisan legislation to give conditional residency to some young people brought to the country without authorization as children. Although nearly three-quarters of the population support the bill (Krogstad, 2020), it remains unpassed.

A thorough understanding of migration theory and the effect of structural constraints on migration can help to forestall counterproductive policies. When states have labor shortages, they need flexible policies to attract labor or risk greater irregular migration. Restrictive policies make this kind of flexibility harder. But to minimize native backlash and partisan resistance to immigrants, states also need to address any lack of adequate employment and any rising inequality among native populations, so that the well-being of immigrants and the ability to migrate may well be linked to domestic conditions as well.

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## References

- Abbasi-Shavazi, M. J., & Kraly, E. P. (2017). Forced and refugee migration in Asia. In Z. Zhao & A. C. Hayes (Eds.), *Routledge Handbook of Asian demography* (pp. 331–350). Routledge.
- Adepoju, A., Van Noorloos, F., & Zoomers, A. (2010). Europe's migration agreements with migrant-sending countries in the Global South: A critical review. *International Migration*, 48, 42–75.
- Agunias, D. R. (2009). *Guiding the invisible hand: Making migration intermediaries work for development* (Human Development Research Paper No. 22). United Nations Development Programme.

- Alcalá, M. J. (2006). *State of world population 2006: A passage to hope, women and international migration*. United Nations Population Fund; see <https://www.unfpa.org/publications/state-world-population-2006>. Accessed on 26 Feb 2022.
- Amuedo-Dorantes, C., & Arenas-Arroyo, E. (2018). Understanding the Consequences of Heightened Immigration Enforcement. In S. Pozo (Ed.), *The human and economic implications of twenty-first century immigration policy* (pp. 107–140). W.E. Upjohn Institute for Employment Research. <https://doi.org/10.17848/9780880996570.ch5>
- Andreas, P. (2000). *Border games: Policing the U.S.-Mexico divide*. Cornell University Press.
- Anich, R., Crush, J., Melde, S., & Ochoa, J. O. (Eds.). (2014). *A new perspective on Human mobility in the South*. Springer.
- Appelbaum, R. P., & Gereffi, G. (1994). Power and Profits in the apparel commodity chain. In E. Bonacich, L. Cheng, N. Chinchilla, N. Hamilton, & P. Ong (Eds.), *Global production: The apparel industry in the Pacific Rim* (pp. 42–62). Temple University Press.
- Averitt, R. T. (1968). *The dual economy: The dynamics of American industry structure*. W. W. Norton.
- Bachmeier, J. D. (2013). Cumulative causation, co-ethnic settlement maturity and Mexican migration to U.S. metropolitan areas, 1995–2000. *Social Forces*, 91, 1293–1317.
- Bailey, T., & Waldinger, R. (1991). Primary, secondary, and enclave labor markets: A training systems approach. *American Sociological Review*, 56, 432–445.
- Bates, D. (2002). Environmental refugees? Classifying human migrations caused by environmental change. *Population and Environment*, 23, 465–477.
- Bean, F. D., Brown, S. K., & Bachmeier, J. D. (2015a). *Parents without papers: The progress and pitfalls of Mexican American integration*. Russell Sage Foundation.
- Bean, F. D., Brown, S. K., & Castillo, E. (2015b). An unexpected legacy: The positive consequences of LBJ's immigration-policy reforms. In R. H. Wilson, N. J. Glickman, & L. E. Lynn (Eds.), *LBJ's neglected legacy: Reshaping the Federal Government* (pp. 124–150). University of Texas Press.
- Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. Columbia University Press.
- Beine, M., Boucher, A., Burgoon, B., Crock, M., Gest, J., Hiscox, M., McGovern, P., Rapoport, H., Schaper, J., & Thielemann, E. (2016). Comparing immigration policies: An overview from the IMPALA database. *International Migration Review*, 50, 827–853.
- Borjas, G. J. (1990). *Friends or strangers: The impact of immigrants on the U.S. economy*. Basic Books.
- Borjas, G. J. (2014). *Immigration economics*. Harvard University Press.
- Boswell, C. (2007). Theorizing migration policy: Is there a third way? *International Migration Review*, 41(1), 75–100.
- Boucher, A. K., & Gest, J. (2018). *Crossroads: Comparative immigration regimes in a world of demographic change*. Cambridge University Press. <https://doi.org/10.1017/9781316416631>
- Brown, S. K., Bean, F. D., & Nasir, S. (2019). International migration. In D. L. Poston Jr. (Ed.), *Handbook of population* (2nd ed., pp. 421–455). Springer.
- Brubaker, W. R. (1989). Membership without citizenship: The economic and social rights of noncitizens. In W. R. Brubaker (Ed.), *Immigration and the politics of citizenship in Europe and North America* (pp. 145–162). University Press of America.
- Brubaker, W. R. (1992). *Citizenship and nationhood in France and Germany*. Harvard University Press.
- Calavita, K. (1992). *Inside the state: The Bracero program, immigration, and the I.N.S.* Routledge.
- Chauvin, S., & Garcés-Masareñas, B. (2012). Beyond informal citizenship: The new moral economy of migrant illegality. *International Political Sociology*, 6(3), 241–259.
- Clemens, M. A., & Postel, H. M. (2018). Deterring emigration with foreign aid: An overview of evidence from low-income countries. *Population and Development Review*, 44(4), 667–693.
- Coleman, D. (2006). Immigration and ethnic change in low-fertility societies: A third demographic transition. *Population and Development Review*, 32(3), 401–446.
- Coleman, D. (2013, April). *Immigration, population and ethnicity: The UK in international perspective*. Migration Observatory briefing, COMPAS, University of Oxford.
- Collett, E., & Le Coz, C. (2018). *After the storm: Learning from the EU response to the migration crisis*. Migration Policy Institute Europe.
- Connor, P. (2017). *European asylum applications remained near record levels in 2016*. Pew Research Center; see <https://www.pewresearch.org/fact-tank/2017/03/15/european-asylum-applications-remained-near-record-levels-in-2016/>. Accessed on 27 Feb 2022.
- Cornelius, W. A. (2001). Death at the Border: Efficacy and unintended consequences of US immigration control policy. *Population and Development Review*, 27(4), 661–685.
- Cornelius, W. A., & Rosenblum, M. R. (2005). Immigration and politics. *Annual Review of Political Science*, 8, 99–119.
- Cornelius, W. A., & Tsuda, T. (2004). Controlling immigration: The limits of government intervention. In W. A. Cornelius, T. Tsuda, P. L. Martin, & J. F. Hollifield (Eds.), (2004). *Controlling immigration: A global perspective* (2nd ed., pp. 3–48). Stanford University Press.
- Crush, J., & Chikanda, A. (2018). South-South migration and diasporas. In E. Fiddian-Qasmiyeh & P. Daley

- (Eds.), *Routledge handbook of South-South relations* (pp. 380–396). Routledge.
- de Haas, H., Natter, K., & Vezzoli, S. (2018). Growing restrictiveness or changing selection? The nature and evolution of migration policies. *International Migration Review*, 52(2), 324–367.
- de Haas, H., Castles, S., & Miller, M. J. (2020). *The age of migration: International population movements in the modern world* (6th ed.). The Guilford Press.
- Dedeoglu, S. (2014). Patriarchy reconsolidated: Women's work in three global commodity chains of Turkey's garment industry. In W. A. Dunaway (Ed.), *Gendered commodity chains: Seeing women's work and households in global production* (pp. 15–118). Stanford University Press.
- Donato, K. M., & Gabaccia, D. R. (2015). *Gender and international migration: From the slavery era to the global present*. Russell Sage Foundation.
- Donato, K. M., Durand, J., & Massey, D. S. (1992). Changing conditions in the US labor market: Effects of the Immigration Reform and Control Act of 1986. *Population Research and Policy Review*, 11, 93–115.
- Faist, T. (2010). Towards transnational studies: World theories, transnationalisation and changing institutions. *Journal of Ethnic and Migration Studies*, 36(10), 1665–1687.
- Federal Reserve Bank of New York. (2020). *The labor market for Recent College Graduates*. Federal Reserve Bank of New York; see <https://www.newyorkfed.org/research/college-labor-market/index.html>. Accessed on 14 June 2021.
- FitzGerald, D. S. (2019). *Refuge beyond reach: How rich democracies repel asylum seekers*. Oxford University Press.
- FitzGerald, D. S., & Arar, R. (2018). The sociology of refugee migration. *Annual Review of Sociology*, 44, 387–406.
- Freeman, G. P. (1995). Modes of immigration politics in liberal democratic states. *International Migration Review*, 29(4), 881–902.
- Fry, R. (2019). *Baby Boomers are staying in the labor force at rates not seen in generations for people their age*. Pew Research Center; see <https://www.pewresearch.org/fact-tank/2019/07/24/baby-boomers-us-labor-force/>
- Furtado, C. (1964). *Development and underdevelopment* (R. W. de Aguiar & E. C. Drysdale, Trans.). University of California Press.
- Gamlen, A. (2014). Diaspora institutions and diaspora governance. *International Migration Review*, 58(1), S180–S217.
- Garip, F. (2012). Discovering diverse mechanisms of migration: The Mexico-US stream 1970–2000. *Population and Development Review*, 38(3), 393–433.
- Garip, F. (2017). *On the move: Changing mechanisms of Mexico-U.S. migration*. Princeton University Press.
- Gerard, A., & Pickering, S. (2013). Crimmigration: Criminal justice, refugee protection and the securitisation of migration. In H. Bersot & B. Arrigo (Eds.), *The Routledge handbook of international crime and justice studies* (Criminal Justice, Borders and Citizenship Research Paper No. 2698974). Routledge; see <https://ssrn.com/abstract=2698974>
- Goodman, A. (2017). The human costs of outsourcing deportation. *Humanity: An International Journal of Human Rights, Humanitarianism, and Development*, 8(3), 527–529.
- Goodman, S. W. (2019). Indexing immigration and integration policy: Lessons from Europe. *Policy Studies Journal*, 47(3), 572–604.
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91, 481–510.
- Granovetter, M. (1995). The economic sociology of firms and entrepreneurs. In A. Portes (Ed.), *The economic sociology of immigration: Essays on networks, ethnicity, and entrepreneurship* (pp. 128–165). Russell Sage Foundation.
- Grasmuck, S., & Pessar, P. R. (1991). *Between two islands: Dominican international migration*. University of California Press.
- Greussing, E., & Boomgaarden, H. G. (2017). Shifting the refugee narrative? An automated frame analysis of Europe's 2015 refugee crisis. *Journal of Ethnic and Migration Studies*, 43(11), 1749–1774.
- Guiraudon, V. (2003). The constitution of a European immigration policy domain: a political sociology approach. *Journal of European Public Policy*, 10(2), 263–282.
- Hagan, J. M. (1994). *Deciding to be legal: A Maya community in Houston*. Temple University.
- Hagan, J. M., Hernández-León, R., & Demonsant, J. L. (2015). *Skills of the "unskilled": Work and mobility among Mexican migrants*. University of California Press.
- Hamilton B. E., Martin J. A., & Osterman M. J. K. (2021). *Births: Provisional data for 2020. Vital Statistics Rapid Release; No 12*. May 2021. National Center for Health Statistics. <https://doi.org/10.15620/cdc:104993>
- Harris, J. R., & Todaro, M. P. (1970). Migration, unemployment & development: A two-sector analysis. *American Economic Review*, 60, 126–142.
- Hatton, T. J., & Williamson, J. G. (2005). *Global migration and the world economy: Two centuries of policy and performance*. MIT Press.
- He, W., Goodkind, D., & Kowal, P. (2016). *An aging world: 2015* (International Population Reports, P95/16-1). U.S. Government Publishing Office.
- Heberle, R. (1938). The causes of rural-urban migration: A survey of German theories. *American Journal of Sociology*, 43(6), 932–950.
- Hollifield, J. F. (1992). *Immigrants, markets, and states: The political economy of postwar Europe*. Harvard University Press.
- Hollifield, J. F., Martin, P. L., & Orrenius, P. M. (2014). *Controlling immigration: A global perspective* (3rd ed.). Stanford University Press.
- Holzer, H. J. (2011). *Immigration policy and less-skilled workers in the United States: Reflections on future directions for reform*. Migration Policy Institute.

- Hondagneu-Sotelo, P. (1994). *Gendered transitions: Mexican experiences of immigration*. University of California Press.
- Infantino, F. (2021). How does policy change at the street level? Local knowledge, a community of practice and EU visa policy implementation in Morocco. *Journal of Ethnic and Migration Studies*, 47(5), 1028–1046. <https://doi.org/10.1080/1369183X.2019.1662717>
- Joppke, C. (1999). *Immigration and the nation-state: The United States, Germany, and Great Britain*. Oxford University Press.
- Juhn, C., & Potter, S. (2006). Changes in labor force participation in the United States. *Journal of Economic Perspectives*, 20(3), 27–46.
- Kivisto, P., & Faist, T. (2010). *Beyond a border: The causes and consequences of contemporary immigration*. Pine Forge Press.
- Krogstad, J. M. (2020). *Americans broadly support legal status for immigrants brought to the U.S. illegally as children*. Pew Hispanic Center. <https://www.pewresearch.org/fact-tank/2020/06/17/americans-broadly-support-legal-status-for-immigrants-brought-to-the-u-s-illegally-as-children/>. Accessed on 30 Aug 2021.
- Lee, E. S. (1966). A theory of migration. *Demography*, 3(1), 47–57.
- Lee, R. D. (2020). Population aging and its economic consequences for China. *China Population and Development Studies*, 3, 189–217.
- Lesthaeghe, R. (2010). The unfolding story of the second demographic transition. *Population and Development Review*, 36(2), 211–251.
- Loucky, J., Soldatenko, M., Scott, G., & Bonacich, E. (1994). “Chapter 19: Immigrant enterprise and labor in the Los Angeles garment industry.” in E. Bonacich, L. Cheng, N. Chinchilla, N. Hamilton, & P. Ong. (Eds). *Global production: The apparel industry in the Pacific Rim*. (Pp. 345–362). : Temple University Press.
- Lozano-Ascencio, F. (1993). *Bringing it back home: Remittances to Mexico from migrant workers in the United States* (Monograph Series, No. 37). University of California, Center for U.S.-Mexican Studies.
- Mahler, S. J. (1995). *American dreaming: Immigrant life on the margins*. Princeton University Press.
- Martin, P. L. (2014). The United States. In J. F. Hollifield, P. L. Martin, & P. M. Orrenius (Eds.), (2014). *Controlling immigration: A global perspective* (3rd ed., pp. 47–77). Stanford University Press.
- Massey, D. S. (1990). The social and economic origins of immigration. *Annals of the American Academy of Political and Social Science*, 510, 60–72.
- Massey, D. S. (1999). International migration at the dawn of the twenty-first century: The role of the state. *Population and Development Review*, 25(2), 303–322.
- Massey, D. S., & Espinosa, K. E. (1997). What’s driving Mexico-U.S. migration? A theoretical, empirical, and policy analysis. *American Journal of Sociology*, 102(4), 939–999.
- Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., & Taylor, J. E. (1993). Theories of international migration: A review and appraisal. *Population and Development Review*, 19(3), 431–466.
- Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., & Taylor, J. E. (1998). *Worlds in motion: Understanding international migration at the end of the millennium*. Clarendon Press/Oxford University Press.
- Massey, D. S., Pren, K. A., & Durand, J. (2016). Why border enforcement backfired. *American Journal of Sociology*, 121(5), 1557–1600.
- McAdam, J. (2019). Introductory note to global compact for safe, orderly, and regular migration. *International Legal Materials*, 58, 160–162.
- McAuliffe, M., & Khadria, B. (Eds.). (2019). *World migration report 2020*. International Organization for Migration; see [https://www.un.org/sites/un2.un.org/files/wmr\\_2020.pdf](https://www.un.org/sites/un2.un.org/files/wmr_2020.pdf). Accessed on 14 June 2021.
- McNicholas, C., & Poydock, M. (2020). *Who are essential workers? A comprehensive look at their wages, demographics, and unionization rates*. Economic Policy Institute.
- Menjívar, C. (2000). *Fragmented ties: Salvadoran immigrant networks in America*. University of California Press.
- Menjívar, C. (2006). Liminal legality: Salvadoran and Guatemalan immigrants’ lives in the United States. *American Journal of Sociology*, 111, 999–1037.
- Messina, C. (1994). From migrants to refugees: Russian, Soviet and post-Soviet migration. *International Journal of Refugee Law*, 6(4), 620–635.
- Natter, K. (2018). Rethinking immigration policy theory beyond ‘Western liberal democracies’. *Comparative Migration Studies*, 6, 4. <https://doi.org/10.1186/s40878-018-0071-9>
- Okunade, S. K., & Ogunnubi, O. (2021). A “Schengen” agreement in Africa? African agency and the ECOWAS protocol on free movement. *Journal of Borderlands Studies*, 39(1), 119–137.
- Orrenius, P. M. (2017). *New findings on the fiscal impact of immigration in the United States* (FRB of Dallas Working Paper No. 1704). <https://doi.org/10.24149/wp1704>
- Peri, G. (2017). The impact of immigration on wages of unskilled workers. *Cato Journal*, 37(3), 449–460.
- Petersen, W. (1958). A general typology of migration. *American Sociological Review*, 23(3), 256–266.
- Piketty, T. (2014). *Capital in the twenty-first century*. The Belknap Press of Harvard University Press.
- Piore, M. J. (1979). *Birds of passage: Migrant labor and industrial societies*. Cambridge University.
- Portes, A. (1995). Chapter 1: Economic sociology and the sociology of immigration: A conceptual overview. In A. Portes (Ed.), *The economic sociology of immigration: Essays on networks, ethnicity, and entrepreneurship* (pp. 1–41). Russell Sage Foundation.
- Portes, A., & Sensenbrenner, J. (1993). Embeddedness and immigration: Notes on the social determinants of

- economic action. *American Journal of Sociology*, 98(6), 1320–1350.
- Rajan, S. I. (2019). The crisis of Gulf migration. In C. Menjivar, M. Ruiz, & I. Ness (Eds.), *The Oxford handbook of migration crises* (pp. 849–868). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190856908.013.4>
- Ratha, D. (2005). Workers' remittances: An important and stable source of external development finances. In S. M. Maimbo & D. Ratha (Eds.), *Remittances: Development impacts and future prospects* (pp. 19–51). World Bank Group.
- Ruggles, S., Flood, S., Goeken, R., Grover, J., Meyer, E., Pacas, J., & Sobek, M. (2020). *IPUMS USA: Version 10.0 [dataset]*. IPUMS. <https://doi.org/10.18128/D010.V10.0>. Accessed on 25 Aug 2021.
- Ruhs, M. (2013). *The price of rights: Regulating international labor migration*. Princeton University Press.
- Salt, J. (1981). International labor migration in Western Europe: A geographical review. In M. M. Kritz, C. B. Keely, & S. M. Tomasi (Eds.), *Global trends in migration: Theory and research on international population movements* (pp. 133–157). The Center for Migration Studies.
- Sassen, S. (1988). *The mobility of labor and capital: A study in international investment and labor flow*. Cambridge University Press.
- Sassen, S. (1995). Immigration and local labor markets. In A. Portes (Ed.), *The economic sociology of immigration: Essays on networks, ethnicity, and entrepreneurship* (pp. 87–127). Russell Sage Foundation.
- Sassen, S. (1996). Beyond sovereignty: Immigration policy making today. *Social Justice*, 23(3), 9–20.
- Saucedo, L. M. (2017). The legacy of the immigrant workplace: Lessons for the 21st century economy. *Thomas Jefferson Law Review*, 40(1), 1–22.
- Stark, O. (1991). Migration incentives, migration types: The role of relative deprivation. *Economic Journal*, 101(408), 1163–1178.
- Stark, O., & Taylor, J. E. (1989). Relative deprivation and international migration. *Demography*, 26, 1–14.
- Taylor, J. E. (1992). Remittances and inequality reconsidered: Direct, indirect, and intertemporal effects. *Journal of Policy Modeling*, 14(2), 187–208.
- Taylor, J. E., Martin, P. L., & Fix, M. (1997). *Poverty amid prosperity: Immigration and the changing face of rural California*. The Urban Institute.
- Taylor, J. E., Charlton, D., & Yúnez-Naude, A. (2012). The end of farm labor abundance. *Applied Economic Perspectives and Policy*, 34(4), 587–598.
- Terry, K. (2021). *The EU-Turkey deal, five years on: A frayed and controversial but enduring blueprint* (Migration Information Source). Migration Policy Institute; see <https://www.migrationpolicy.org/programs/migration-information-source>. Accessed on 25 Aug 2021.
- Tilly, C. (1990). Transplanted networks. In V. Yans-McLaughlin (Ed.), *Immigration reconsidered: History, sociology and politics* (pp. 79–95). Oxford University Press.
- Todaro, M. P., & Maruszko, L. (1987). Illegal migration and US immigration reform: A conceptual framework. *Population and Development Review*, 13(1), 101–114.
- Tolbert, C. M., Horan, P. M., & Beck, E. M. (1980). The structure of economic segmentation: A dual economy approach. *American Journal of Sociology*, 85, 1095–1116.
- Torpey, J. C. (2018). *The invention of the passport: Surveillance, citizenship and the state* (2nd ed.). Cambridge University Press.
- Tsuda, T. (2010). Ethnic return migration and the nation-state: Encouraging the diaspora to return 'home'. *Nations and Nationalism*, 16(4), 616–636.
- Tyyskää, Y., Blower, J., DeBoer, S., Kawai, S., & Walcott, A. (2017). *The Syrian refugee crisis: A short orientation* (RCIS Working Paper 2017/2). Ryerson University, Ryerson Centre for Immigration and Settlement.
- U.S. Bureau of Labor Statistics. (2020). *Current population survey*. U.S. Government Printing Office; see <https://www.bls.gov/data/#employment>. Accessed on 25 Aug 2021.
- U.S. Bureau of the Census. (2020). *Census international database 2020*. U.S. Department of Commerce; see [https://www.census.gov/data-tools/demo/idb/#/table?COUNTRY\\_YR\\_ANIM=2021](https://www.census.gov/data-tools/demo/idb/#/table?COUNTRY_YR_ANIM=2021). Accessed on 25 Aug 2021.
- U.S. National Academies of Sciences, Engineering and Medicine. (2016). The economic and fiscal consequences of immigration. Panel on the Economic and Fiscal Consequences of Immigration. In F. Blau & C. Mackie (Eds.), *Committee on National Statistics, Division of Behavioral and Social Sciences and Education*. The National Academy Press.
- United Nations. (2019). *International Migrant Stock 2019*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations High Commissioner for Refugees. (2020). *Global trends: Forced displacement in 2020*. UNHCR Global Data Service, Statistics and Demographics Division; see <https://www.unhcr.org/60b638e37/unhcr-global-trends-2020>. Accessed on 25 Aug 2021.
- Vari, E. (2020). Italy-Libya memorandum of understanding: Italy's international obligations. *Hastings International and Comparative Law Review*, 43(1), 105–134; see [https://repository.uchastings.edu/hastings\\_international\\_comparative\\_law\\_review/vol43/iss1/5](https://repository.uchastings.edu/hastings_international_comparative_law_review/vol43/iss1/5). Accessed on 25 Aug 2021.
- Vine, D., Coffman, C., Khoury, K., Lovasz, M., Bush, H., Leduc, R., & Walkup, J. (2020). *Creating refugees: Displacement caused by the United States' post-9/11 Wars*. Brown University, Watson Institute for International and Public Affairs; see [https://watson.brown.edu/costsofwar/files/cow/imce/papers/2020/Displacement\\_Vine%20et%20al\\_Costs%20of%20War%202020%2009%2008.pdf](https://watson.brown.edu/costsofwar/files/cow/imce/papers/2020/Displacement_Vine%20et%20al_Costs%20of%20War%202020%2009%2008.pdf). Accessed on 25 Aug 2021.

- Waldinger, R. (1996). *Still the promised city? African-Americans and new immigrants in postindustrial New York*. Harvard University Press.
- Wallerstein, I. (1983). *Historical capitalism*. Verso.
- Zlotnik, H. (1999). Trends of international migration since 1965: What existing data reveal. *International Migration*, 37, 21–61.
- Zolberg, A. R. (1999). The politics of immigration policy: An externalist perspective. *American Behavioral Scientist*, 42(9), 1276–1279.
- Zolberg, A. R. (2006). *A nation by design: Immigration policy in the fashioning of America*. Harvard University Press/Russell Sage Foundation.
- Zolberg, A. R. (2007). The changing nature of migration in the twenty-first century: Implications for integration strategies. In G. Yurdakul & Y. M. Bodemann (Eds.), *Citizenship and immigrant incorporation: Comparative perspectives on North America and Western Europe* (pp. 17–27). Palgrave Macmillan.



Anne Goujon

## Introduction

The role and purpose of formal education is broad, mostly related to shape individuals to function smoothly within society, in economic terms, instilling them with skills, but also in terms of socialization and values. Formal education is usually the responsibility of the State for its organization and curricula; however, private organizations also step in to provide formal education. With this in view, education is likely to have a broad impact on individuals, whether those are intended or not intended by the curricula put in place.

While education has been existent for centuries in all world civilizations, the phenomenon of mass education is rather new and has emerged slowly at first but with increasing speed with the Industrial Revolution when the need for qualified workers became more and more necessary. Figure 30.1 shows primary school enrolment rates from 1820 to 2010 for 108 countries, and for the world. Whereby a few countries like Denmark had started schooling children early in the nineteenth century, for most

countries, surge in primary enrolment occurred mainly in the twentieth century and for many low-income countries increasing slowly until World War II and then growing rapidly in the 1980s (Meyer et al., 1992).

Progress has gone beyond primary schooling and the world population in 2020 has received more education than it had in 1950, as shown in Fig. 30.2. The proportion of people aged 15 years and over with no education has declined from 46% to 12% between 1950 and 2020. The decline is also substantial at the level of those who have not completed primary schooling (from 12% in 1950 to 6% in 2020). More people have received a lower secondary education (from 12% to 24%), which has become compulsory in many low- and middle-income countries, an upper-secondary education (from 7% to 28%) and the post-secondary education has exploded from a tiny fraction in 1950 (2%) to 16% in 2020, pointing at the world evolving towards a knowledge society.

However, the world picture is not representative of what has happened across world regions and countries. Figure 30.3 shows for a few selected world regions the mean years of schooling achieved by the population over the age of 15 years from 1950 to 2020, distinguishing between men and women. Two main facts become apparent: there are marked differences between low and medium-income countries, on the one hand, and high-income countries, on the other, although the gap has been strongly reduced

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in 2020 compared to 1950 where in most regions represented the population had received on average less than four years of education. The other fact is that a gender gap is present in all regions and is particularly acute and persistent in Southern Asia (1.6 years difference across gender in 2020) and Western Africa, where men have on average 1.9 more years of education. Latin America and the Caribbean is the first sub-continent where women have more years of schooling than men, which is happening because women tend to complete upper-secondary and tertiary education more than men. As mentioned by Goujon et al. (2016), there are many dichotomies that can be found across generations, geographical areas, and gender. One interesting finding is that at high levels of education, countries tend to converge to similar levels of attainment, while the diffusion process – which can last for decades – is a time of divergence with countries adopting different pace of change in education.

The strive for further expansion of education is largely based on its enabling capacity because education plays a crucial role in individuals' well-being and social progress and is essential in the development framework. This has been acknowledged in all international agendas from the International Conference on Population and Development (United Nations, 1995) to the Sustainable Development Goals, which specify that “(e)ducation enables upward socioeconomic mobility and is a key to escaping poverty”.<sup>1</sup> Consequently, education will shape individual's behavior, also in demographic terms. The literature is abundant about how formal education is a factor of heterogeneity in the fertility and mortality but also migration patterns of individuals. We will dissect the fertility-education link and its determinants in the next section “[Education and fertility: The link](#)”, so let us have a closer look at the link between education and mortality and education and migration in the next few paragraphs.

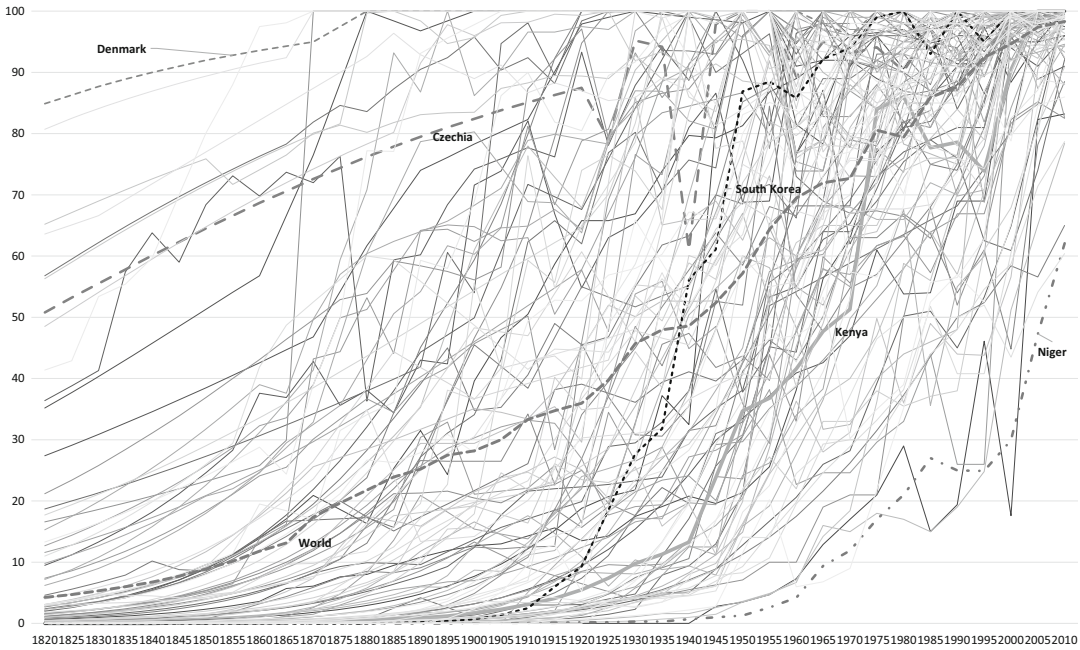
Educational attainment has positive effects on health. The well-educated experience better

health than do the poorly educated, as indicated by high levels of perceived health and physical functioning and low levels of morbidity, mortality, and disability (Cutler & Lleras-Muney, 2006). A large part of the effect is mediated through higher incomes and access to health insurance. However, as Cutler and Lleras-Muney (2006) have shown, there is also a direct link between education and health, in which increased knowledge and a sense of personal control encourages health-enhancing behaviors, such as exercising and averting risky behaviors (e.g., smoking, drinking, and irrational driving). Education also increases the likelihood of having an efficient social network (Ross & Van Willigen, 1997; National Research Council, 2012). The literature has also shown an effect of education at the community level, although it becomes more modest when controlling for individual characteristics (Pickett & Pearl, 2001).

The social externalities associated with women's education go beyond that of their own health and extend to their children, and particularly their health and nutritional status as well as their survival in the first five years of life. Collected data from the World Fertility Surveys and Demographic and Health Surveys have shown the clear and consistent gradient in infant and child mortality rates depending on maternal education. Direct causality is as usual difficult to prove in social sciences (Lutz and Skirbekk, 2014). However, the literature has been mostly confirming the link between a mother's education and child mortality, even when some other variables were introduced, meaning that the education of the mother has an impact of its own (e.g., Wang et al., 2014; Boyle et al., 2006). Caldwell (1982) mentioned three possible reasons for this link: (1) educated mothers may be expected to break with damageable traditions (such as food habits and taboos) and to become less fatalistic about illnesses; (2) they are more capable of demanding the attention of doctors; and (3) maternal education may change the familial relationship in favor of the mother and the children.

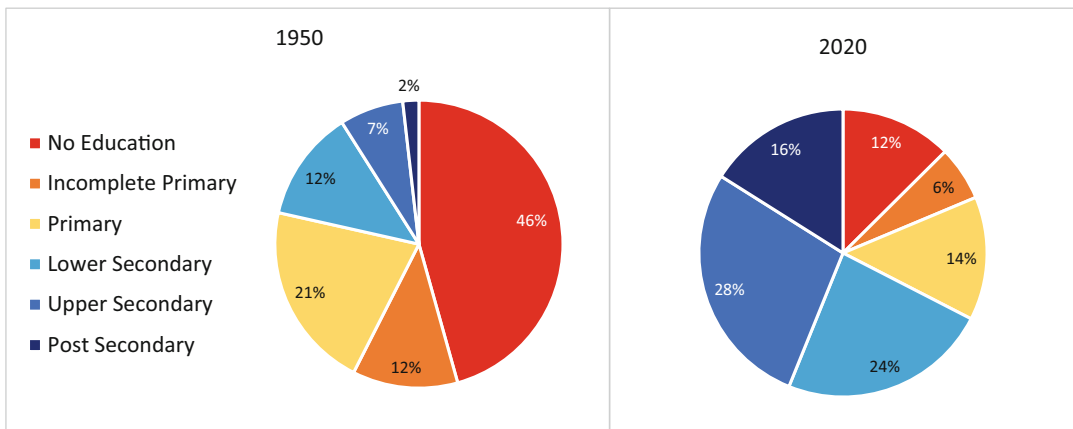
It is a different matter when it comes to explicitly use and justify education to enhance health and reduce disparities at the policy level, which is

<sup>1</sup> See <https://www.un.org/sustainabledevelopment/education/>, accessed on September 29, 2021.



**Fig. 30.1** Enrolment in primary education, 1820–2010. (Note: Enrolment rates for the world are calculated as the weighted average of enrolment by the total population at country level. Source: Author’s calculation and

visualization based on enrolment rates and population available at [www.ourWorldInData.org/](http://www.ourWorldInData.org/), accessed on September 26, 2020)

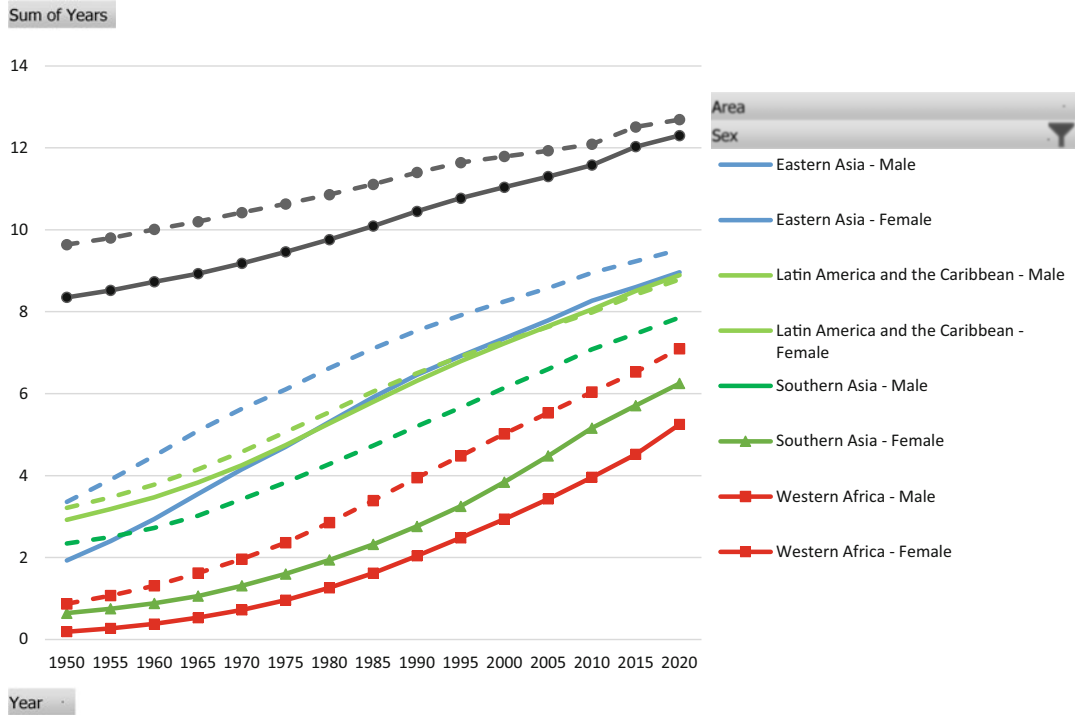


**Fig. 30.2** Share of the world population aged 15 years and over by education in 1950 and 2020. (Note: Data for 2020 are projected from the base-year (2015) using the

medium scenario (SSP2). Source: Wittgenstein Centre for Demography and Global Human Capital, 2018)

implemented in a few countries as for instance listed by Low et al. (2005), e.g., Sweden, the United Kingdom, Canada, and the Netherlands. Policy integration and cross-cutting approaches have gained prominence on the development

agenda, especially within the Sustainable Development Goals (SDGs) (Le Blanc, 2015). However, the education-health cross-fertilization possibility is not deeply emphasized across the SDGs, only when it comes to reproductive health



**Fig. 30.3** Mean years of schooling of the population 15+ in selected world regions, 1950–2020. (Note: Data for 2020 are projected from the base-year (2015) using the

medium scenario (SSP2). Source: Wittgenstein Centre for Demography and Global Human Capital, 2018)

and sexual education. It has also been emphasized that addressing recognized determinants of health such as education (among others) in intersectoral policies is difficult because it relates to tackling the difficult and persistent issue of social and economic inequalities (Bonney et al., 2007). Another reason is that government ministries (such as education and health ministries) are organized vertically as silo and are ill equipped to address issues across sectors.

The education-migration link is difficult to appraise in the different context in which it happens, whether it is internal migration, e.g., from rural to urban areas, international migration, or displacement, mostly due to the lack of data on migration and on migration by educational attainment in particular. However, migrants are usually a selective group, and tend to consist of the relatively better educated and better trained as has been shown for instance in the case of emigration to OECD countries (Docquier & Marfouk, 2006)

and asylum seekers to (mostly) Europe in 2015, following the aftermath of the Arab Spring (Buber-Ennser et al., 2016).

The question of the education-migration relationship has become central in studying the issue of the brain-drain. Net returns to migration are higher for the more educated as they are more able to implement their migration intentions. As a result, many migrants migrate to countries where they can benefit more from the education they have received in their country of origin, or remain in the destination country for their studies (Lin & Pleskovic, 2008), this without benefitting their country of birth. However, several studies have shown that the remittances that are associated with this type of migration can support the development of the education sector in the country of origin. In addition, return migration can alleviate or reverse the consequences of the brain-drain when migrants return with skills that they are able to use (David & Nordman, 2017). The

brain-drain poses a challenge for the development of education in poor settings like sub-Saharan Africa, where employment opportunities are not matching the development observed in higher education. Some researchers have pointed out the potential consequences in terms of flows to medium and high-income countries. Barnum and Sabot (1976) saw a decrease in the rate of investment in education to regulate surplus urban labor. Others (e.g., Skeldon, 2008) point at the need to integrate migration in the development and implementation of a development policy, for instance related to education.

### Education and Fertility: The Link

The link between fertility and education has been long established empirically, with the observation that in most settings and across time, women with a higher education bear less children than the less educated women. This is evident at the cross-sectional level as shown in Fig. 30.4. In low- and middle-income countries that have been covered by a Demographic and Health Survey (DHS), the difference in fertility (measured by the total fertility rate – TFR) between women with a primary education or less and that of women with a secondary education or more is most of the time substantial. In Niger, Angola and Côte d’Ivoire, the difference in fertility is around three children, e.g., in 2013–2016, women in Angola with low levels of education had 7.5 children while their more educated counterparts had 4.5 children.

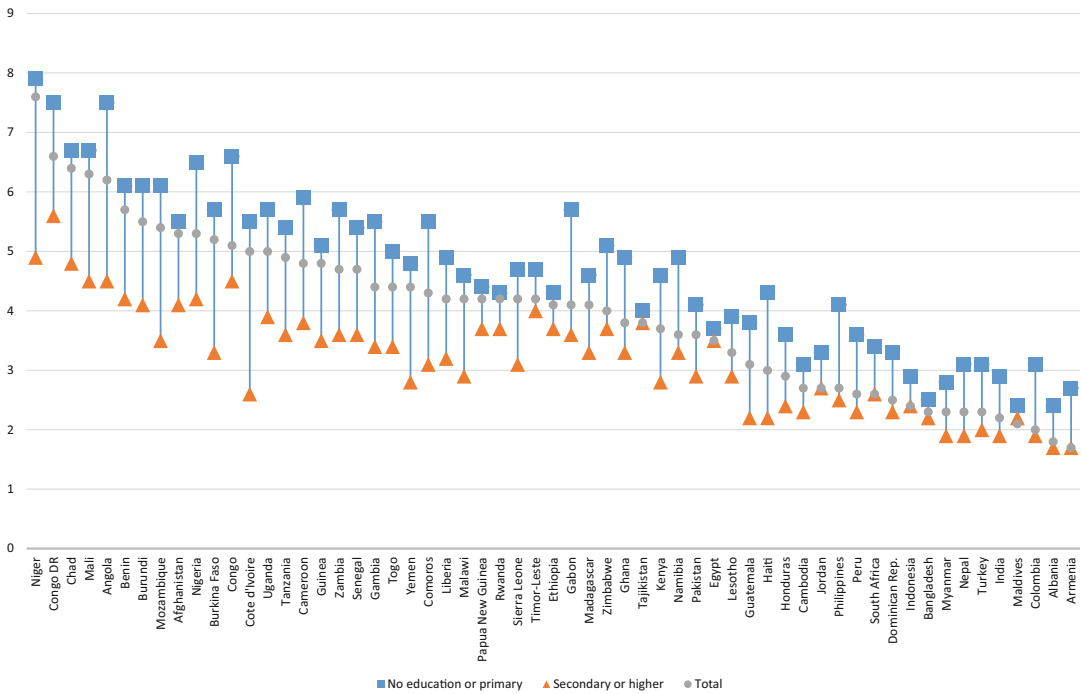
The difference in TFR is sometimes smaller, like in the case of Cambodia, South Africa, Jordan, or Egypt where it is less than a child between women with a low or a high level of education. The literature has shown that it depends on the setting – cultural, religious, geographical, women’s autonomy (see for instance Jejeebhoy, 1995) – and on the stage of the country in the fertility transition, as revealed by Fig. 30.5. The differential in absolute terms tends to be smaller as the overall fertility progresses to lower levels (Bongaarts, 2003) (also shown on Fig. 30.6). When the fertility is around two

children, the difference tends to be small, around 0.5–1.0 child between the fertility of women with a lower education compared to that of women with a higher education. However, and as noted by Bongaarts (2003: 333), “*although the evidence is not entirely conclusive, educational differentials are likely to remain substantial when less developed countries reach the end of their transitions*”. It applies particularly to women with no schooling who are less likely to experience a reduced fertility for they are a selective isolated group facing socioeconomic challenges such as poverty, living in remote places, and lacking autonomy as well as access to family planning services.

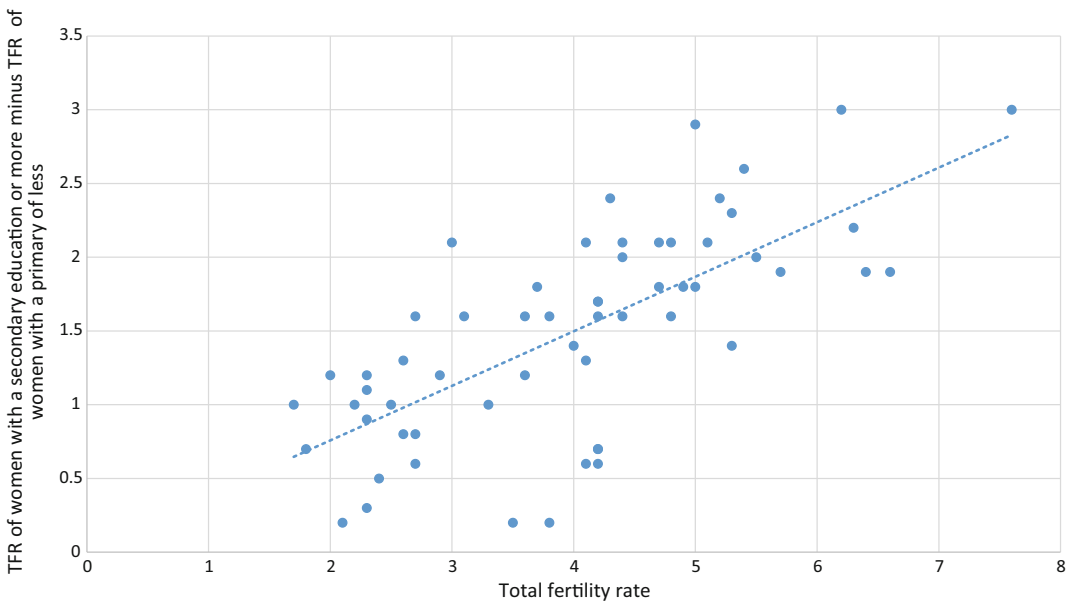
What happens at lower levels of fertility is very interesting because, on the one hand, differentials tend to become small and negligible but, on the other hand, there is a tendency for a U-shaped TFR with women with an advanced degree having more children than those with an upper-secondary education (usually compulsory education) (Hazan & Zoabi, 2015).<sup>2</sup> This was likewise shown at the level of fertility intentions. Testa (2014), for instance, demonstrated that the proportion of highly educated women is positively associated with higher fertility intentions. The results are interesting at the policy level because they tend to suggest that structural circumstances other than education may also encourage fertility – such as individuals’ sense of well-being –, which is essential in low fertility settings (see also section “[The low fertility-high education trap](#)”).

The mechanisms through which education influences fertility has been analyzed in depth using different strands of research, mostly economics or sociology. Overall, what dominates the conceptual framework of how female education influences fertility are the following pathways.

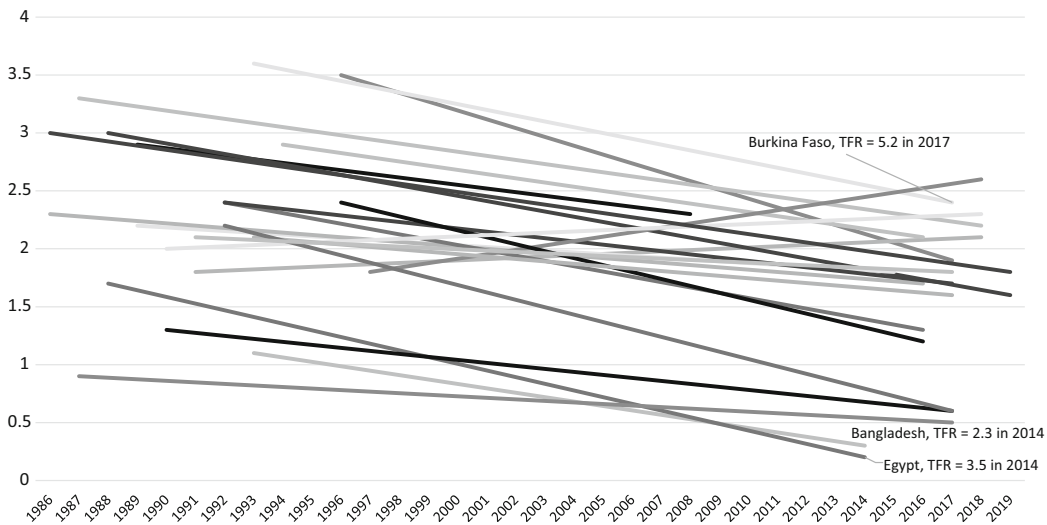
<sup>2</sup> The evidence is not yet fully compelling whether this pattern in total fertility rate (TFR) by education – which provides more a snapshot of fertility – will translate into a similar pattern for completed fertility rates for the different cohorts of educated women, for the main reason that it is rather a new phenomenon.



**Fig. 30.4** Total fertility rate by education since 2010, selected countries. (Note: Representing all countries with a DHS since 2010. Source: Author’s visualization based on latest DHS since 2010, accessed on September 27, 2021)



**Fig. 30.5** Relationship between the total fertility rate of women (x-axis) and the total fertility rate by education since 2010. (Note: Representing all countries with a DHS since 2010. Source: Author’s visualization based on latest DHS since 2010, accessed on September 27, 2021)



**Fig. 30.6** Difference in TFR between high and low levels of education, between the most recent and the oldest DHS. (Note: The countries represented on this graph are Bangladesh, Benin, Bolivia, Burkina Faso, Cameroon, Egypt, Ghana, Haiti, Indonesia, Jordan, Kenya, Liberia,

Madagascar, Malawi, Mali, Mozambique, Nepal, Nigeria, Philippines, Rwanda, Senegal, and Tanzania. Source: Author's calculations based on DHS countries (with more than five survey rounds, based on the most recent and oldest surveys))

Education increases the bargaining power of women within the household (Martín-García, 2008). Through schools and access to mass media (including social media), girls develop smaller ideals of family size (National Research Council, 2001) and tend to delay marriage, also a direct result of staying longer in school (Fuchs & Goujon, 2014). Furthermore, the opportunity costs of children are higher for mothers employed in formal labor markets, which is more likely for women with higher education (Farooq & Simmons, 1985)—also in comparison to men's economic power, which could increase the resources of the household and inflate fertility (Breierova & Duflo, 2004). Families with higher education want fewer children in which they will invest more in terms of education and health, the so-called quality over quantity argument (Galor & Weil, 1999). Moreover, the impact of mothers' education on lowering children's morbidity and mortality (see Introduction) could reduce in an indirect manner their fertility (Notestein, 1945), by raising their expectation of their children survival, and hence reducing the necessity to bear more children to arrive at the desired family

size—a key argument in the demographic transition theory. Education also increases knowledge and awareness about modern methods of family planning as well as the incentive to use them (Liu & Raftery, 2020).

Another important pathway, even so more in view of policy, is the importance of education at a more aggregate level, and whether the education of women at the community level has any depressing “*effects on a woman's fertility above and beyond that of her own education*” (Kravdal, 2000: 2). As a result, education could “spill-over” to less educated women. Kebede et al. (2021) demonstrate the impact of women's education on fertility intentions in sub-Saharan Africa, showing that both individual and community level of education have a significant, dampening impact on women's fertility desires, stronger than economic wealth measured at all levels, and controlling for place of residence. Their analysis point at the fact that education does not only impact fertility intentions through the economic endowment channeled by education, as was correctly hinted for instance by Cleland and Wilson (1987).

## Impact of Education Policies on Fertility

The previous section looked at the differentials existing between different levels of education. However, we did not look directly at the impact of education on changing fertility and particularly when education policies have led to an expansion of education. Several papers are touching upon the subject although the difficulty is always to isolate the policy from other parameters that are happening at the same time, for instance that education expansion would happen at the time of increased wealth in the country.

Kebede et al. (2019; see also Goujon et al., 2015) looked at the phenomenon of stalls in fertility decline in sub-Saharan Africa. Those stagnation or in some cases even reversal of trends have been recurrent in many countries on the sub-continent since the early 2000s, and the authors tried to link them with the decline in educational attainment that occurred when those women who bore more babies than expected were of schooling age. It also happened that this period of decline in educational attainment coincide with major crises over the African continent, when many budgets were adjusted in the 1980s and early 1990s with severe cuts in social spending such as in health and education. Goujon et al. (2015) show descriptively that in those countries where school-aged girls had grown up in an environment with decline in educational attainment, the women were later more likely to have more children compared to those countries where it did not occur. Kebede et al. (2019) were able to verify the relationship statistically, although some period effects (e.g., health, social, or economic disruptions) seem to have also contributed to the fertility stall.

In the context of Albania, Gjonca et al. (2008) distinguish between explicit and implicit policies affecting fertility. Explicit policies are, for instance, family planning policies, but the authors conclude that it was more the socioeconomic policies and particularly those rising women's education that contributed to lower the fertility from seven children to 2.2 in 50 years (1.6 children estimated in 2015–2020 (United Nations,

2019), by modifying their position within society and family.

Furthermore, there is evidence of the direct link between education policies and their impact on fertility. In 1994, Ethiopia implemented an education reform increasing the national budget allocated to education and the number of schools and teachers, improving the curriculum in combination with several inciting measures—suppression of school fees for the 1st ten grades, introducing teaching in local languages, and food provision in rural impoverished areas, to name the most important ones. The reform led to an increase in the average schooling of women of about 0.8 years for all cohorts who benefitted from it from partial or full coverage (Pradhan & Canning, 2015). Controlling for different variables (religion, ethnicity, number of siblings, etc.), the authors found that each additional year of female schooling lowered the probability of teenage marriage and childbearing by about six percentage points. Similar findings of the causal impact of education policies on fertility – through marriage and early fertility postponement and increased use of family planning – have been shown in Nigeria (Osili & Long, 2008), following an effort to increase the coverage of primary schools. In Kenya, the impact was verified after an increase of one year of the duration of primary education (Chicoine, 2012), similarly in Indonesia (Breierova & Duflo, 2004).

The impact of policies to increase levels of education and targeting the closing of the gender gaps have been key in many contexts. The most cited one is that of the Asian Tigers (Japan, Hong Kong, Taiwan, South Korea, and Singapore) (Morris, 1996), whose high performing economies have a strong human capital resource base, which was developed in stages from the development of primary education to higher levels (Goujon & Samir, 2008).

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## The Future of Educational and Fertility Development

Based on the literature, on past developments, and on the view of experts, some researchers

have projected how the population could change globally taking into consideration both progress in education and changes in fertility on top of other assumptions regarding mortality and migration combined in scenarios at the global level (Lutz et al., 2014, 2018). Results are presented in this section. The main assumption behind the scenario is that education will have a spill-over effect that will in turn lower fertility and mortality. The projections have been conducted in several rounds. The last one (Lutz et al., 2018) show what how the world would look like following the narratives of the shared socioeconomic pathways (SSPs) that were developed to underline the Intergovernmental Panel on Climate Change (IPCC). One scenario follows trends observed in the last few years, another assumes that education would be fast tracked, so that the education targets of the SDGs would be achieved by 2030. On the other extreme, another scenario assumes that education progress would stall. The world population according to these three scenarios is shown in Fig. 30.7.

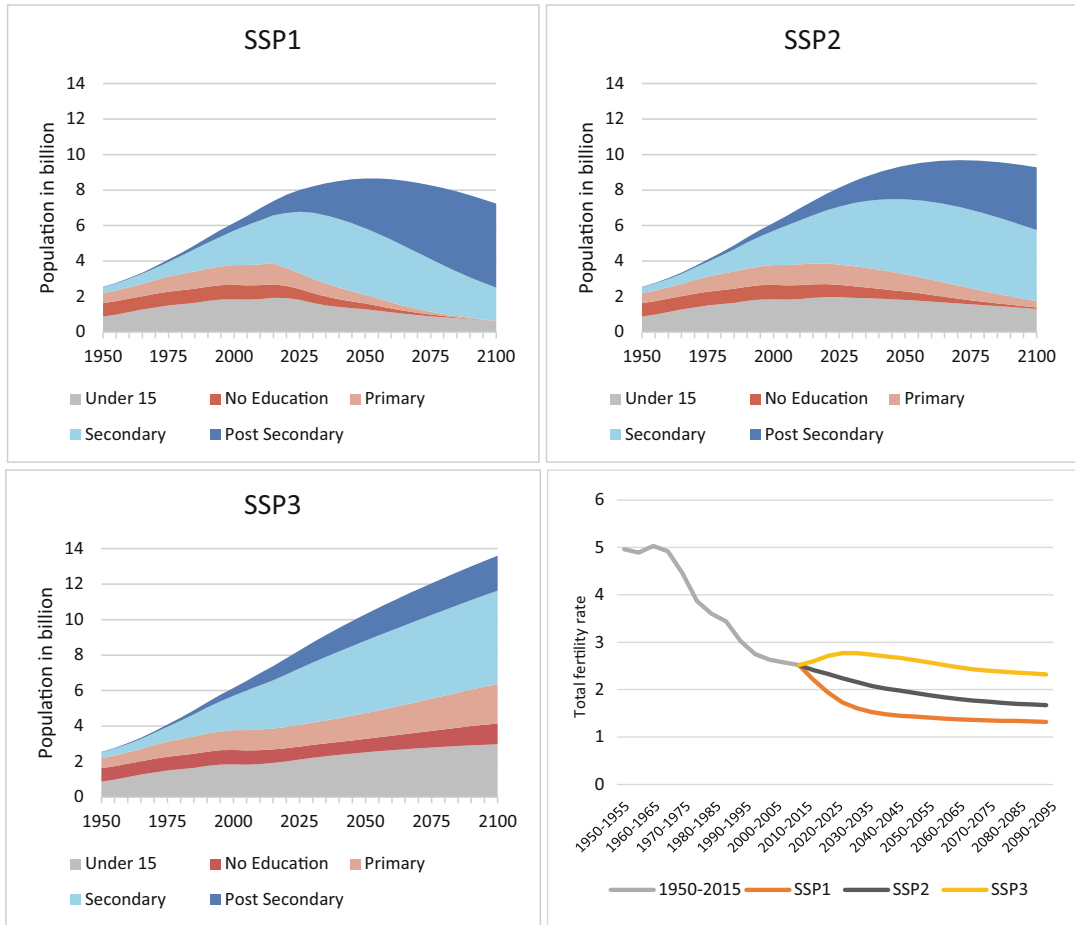
The SSP1 scenario envisages a sustainable future for the world and a population that would decline very fast. It shows that the fertility at global level would reach below replacement level already around 2020. As a result, the population would peak in 2050 at the level of 8.7 billion and would start declining thereafter to reach 7.2 billion in 2100. All achievements require tremendous investments in education, also in girls' education, because the attainment gap closes at all levels by 2030. In 2050, 47% of the working age population (20–64) would have a post-secondary education, and only 6% would still have an education equivalent to completed primary or below. This would mean dramatic changes for some countries, particularly in sub-Saharan Africa. For instance, in Niger, the country with the highest contemporary fertility, the TFR would decline to replacement level in less than 20 years (by 2035–2040). The increase in the share of women with any education would be very fast. When last measured in the 2012 Census, more than 80% of women had no schooling (Goujon et al., 2020) and they would only be 34% in 2030, 15% in 2050, and 0% in 2100. For

many countries, such as Niger, this scenario seems out of reach because of their limited capacity.

The SSP2 scenario assumes overall that countries follow the global trend in terms of education transitions that was observed in the past decades. The same is true for fertility, which would globally decline to reach replacement level in 2035. In Nigeria, for instance, this would mean the TFR would be dropping from 5.7 children per woman in 2010–2015 to 3.1 in 2050–2055. The differentials between levels of education would be reduced. The TFR of the non-educated would go down from 6.6 children in 2015–2020 to 3.9 children in 2050–2055, and that of post-secondary educated women from 3.5 children to 2.5 children in the same period. Globally, the population would also peak within this century but later than according to the SSP1 scenario, at a level of 9.7 billion in 2070—20 years later and with one billion more people, compared to the SSP1 scenario. The world population would slowly go down thereafter and would reach 9.3 billion in 2100. The population in a SSP2 scenario world would also be more educated than it is today with a stronger emphasis on secondary education compared to SSP1 where transition to post-secondary education would be fast-tracked. This would mean for instance that the population of Pakistan, which would increase from 189 million as estimated in 2015 would reach 307 million in 2050 with a working age population (20–64) divided between the four levels of education as follows: 20% with no education or an incomplete primary education (52% in 2015), 9% with a primary education (11% in 2015), 55% with a secondary education (31% in 2015), and 17% with a post-secondary education (7% in 2015). The gender gap in education would be closed at most levels. While this scenario is not as optimistic as SSP1, it would still require some major investments in the education sector.

The SSP3 scenario adopts a contrary approach to that of SSP1 and SSP2. It imagines a “*fragmented world*” (KC & Lutz, 2017: 184), with high population growth in developing countries (high fertility) and low in high-income countries (low fertility). This scenario assumes





**Fig. 30.7** World population and fertility trajectories according to three scenarios, 1950–2100. (Note: The base-year is 2015; 1950–2010 data are reconstructed and

2020–2100 data are projected. Source: Wittgenstein Centre for Demography and Global Human Capital, (2018)

low progress in education for all three world regions, which would be more damageable for those countries that have low levels at present. The population would continue to grow substantially, at least until the end of the century when it would reach 13.6 billion. It would reach the peak population of the SSP1 scenario by 2030 and that of SSP2 by 2045. The levels of education would stagnate, meaning a large part of the world would have low levels of educational attainment. In 2050, 15% of the working age population would have below primary education and 21% a post-secondary education. About 60% of the population with no schooling would be women, with no improvement since 2015. For some countries, this

scenario would result in unsustainable population increase. For instance, in Mali, the present population of about 20 million would reach 44 million in 2050 and 80 million in 2100, which is difficult to imagine on a large country where desert or semi-desert covers about 65% of the country’s area.

It is important to note here that the different scenarios follow also assumptions about mortality and migration that are also dependent on education. While the scenarios provide an idea about the changes that could occur when levels of education increase largely (or do not), they imply many changes that would be needed in terms of investment in the socioeconomic sectors.

Transformations would be required in the availability of reproductive healthcare, for instance, in order for women to access family planning, in education with an emphasis on the building of school infrastructures and training of teachers, but also in the economic sector that would need to provide employment for the educated labor force. To summarize, none of these scenarios would happen automatically and would require actions by many stakeholders, especially in the development arena.

### The Low Fertility-High Education Trap

Another phenomenon that becomes apparent from the projections under scenario SSP1 and SSP2 is that in more and more countries, women's fertility is and will likely be below replacement level. This will be inducing population decline at the global level and for some countries. In connection with strong emigration streams as experienced in the recent past, this would result in negative population growth rates, e.g., in Lithuania.

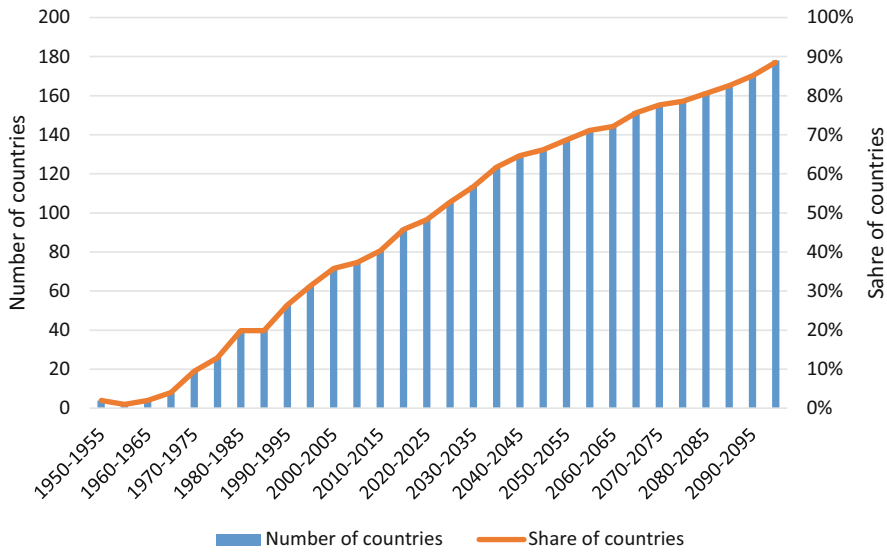
Figure 30.8 provides the number and share of countries where replacement fertility is below 2.1.<sup>3</sup> There were four countries with below replacement fertility in 1950–55 in Eastern Europe; 19 countries in 1970–1975, mostly in Europe; and 92 countries in 2015–2020, in all settings, in Asia (e.g., China, Thailand, and Japan) but also on the American continent and in Europe, with the exception of some French overseas department like French Guiana or Réunion (United Nations, 2019). This trend is projected to continue and according to the United Nations (2019) Medium variant, there would be about 145 such countries in 2050 and 178 in 2100.

<sup>3</sup> We use the standard level of 2.1 children for replacement fertility, as a proximate value. We consider that in many countries, mortality and especially children mortality causes the level of fertility necessary for a society to reproduce itself to be at higher levels (as high as 2.8), although these countries are slowly converging to the value of 2.1 children (see Gietel-Basten & Scherbov, 2020).

In a few countries, the TFR is very low – also called ultra-low fertility – and this is particularly the case of East-Asian and Southeast Asian societies where the fertility has been under 1.3 children per woman on average since the early 2000s, e.g., Republic of Korea, Taiwan, Macao, and Singapore. The ultra-low fertility has been explained by several factors that are consensual in the literature. Some factors are common to all countries that follow the fertility transition such as the spread of individualistic values, increased levels of educational attainment, and corresponding returns to education, also for women, and economic stress providing an uncertain environment for implementing fertility intentions. Other factors are more specific to East-Asian societies including “*the emphasis on human capital, intense educational competition, high cost of childcare and education due to a lack of family-oriented governmental policies, traditional patriarchy, gender inequality, rapid modernization, and traditional values, as well as a gap in social security systems*” (Park, 2020: 203).

Several authors have examined the fertility decline in relation with the increases in levels of education to lowest levels in Asian countries, and particularly in the case of South Korea and Japan. Choe and Retherford (2009) studied the contribution of the major rise in women's level of education to fertility decline. While they found a moderate effect of the education, they postulate that the numbers probably “*understates substantially the contribution of rising levels of education to the fertility decline. We speculate that rapidly rising levels of education additionally contributed to fertility decline through increased competition for good jobs and greater investment in children's education through private cram schools*” (Choe & Retherford, 2009: 267).

In 2006, Lutz et al. (2006) advanced the hypothesis of a low-fertility trap, which postulated that when a country reaches ultra-low levels of fertility, way under replacement level, some mechanisms might prevent the fertility to go up again. The first mechanism has to do with the negative momentum of population growth, and the fact that in those low-fertility countries there are fewer and fewer women of reproductive age



**Fig. 30.8** Number (1st y-axis) and share (2nd y-axis) of countries with a TFR below 2.1 children per woman, 1950–2100. (Source: United Nations, 2019)

in the population. The second mechanism is the effect of socializing in an environment with few children, which will influence the family size norms. In addition, the third mechanism is the economic one, which relates the income to aspirations: an aging society, induced by low fertility, would be less able to generate economic growth and therefore less conducive to an increase in fertility, especially when youth competing on the labor market all are in possession of a higher education degree.

The ultra-low fertility countries have implemented a series of pronatalist measures to increase fertility, focusing on facilitating marriage, increasing the availability and accessibility of childcare as well as employment and housing for parents (Jones, 2019). The fertility experience in East Asia tends to prove the low-fertility trap hypothesis because the measures have not been able so far to raise fertility substantially. However, Japan has managed to increase its TFR from 1.26 in 2005 to 1.43 in 2017 (National Institute of Population and Social Security Research, 2020). In a comparison of policies implemented by Japan and South Korea, Park (2020) notices that policies in Japan have become gradually more holistic and not just supporting financially families and family wannabees (e.g., increasing

parental leave) like it is still the case in South Korea. The measures also focus on facilitating a conducive environment at large, encompassing “*employment, housing, education and work life-balance*” (Park, 2020: 204) (see also Tsuya, 2015).

Another aspect is that while increased levels of educational attainment have contributed to lower fertility, they could also remedy some of the challenges associated with such a decline. Loichinger and Marois (2018) and Marois et al. (2020) have shown through micro-simulations that with increased levels of education and raised labor force participation rates of women, old-age dependency ratios would then not increase so dramatically and rapidly as expected.

## Conclusion

There are several unknowns that could have an impending role on how education could interfere with the demographic behavior and hence with the population size and structure of the different countries in the future. We review this non-exhaustive list of uncertainties in this section.

First, the education revolution is still on-going, especially in low- and middle-income countries

where large segments of the children and youth populations do not benefit from a full-fledged education. UNESCO estimated that in 2018, there were about 59 million children of primary school age and 62 million of lower secondary school age who were out of school. Most of the out of primary school children are in sub-Saharan Africa (32 million) and Southern Asia (thirteen million). Most primary school aged children will receive some education, even if they do not complete the full number of years. However, more than one out of five out-of-school children will never enter a classroom (UNESCO, 2019). Also, in view of the link between education and fertility, policies should address this missed opportunity by strengthening education for the disadvantaged.

Second, in the recent years, and very closely related to the monitoring and review of progress on the Millennium Development Goals (MDGs), education quality has come to the forefront of considerations for the future development of education programs. Several studies have shown that improvements in educational attainment have not always been commensurate with increases in education quality in low-income countries. This is utterly important when considering that the quality of education, which can be measured in the relevant cognitive skills (for instance literacy and numeracy), has an important impact on socioeconomic outcomes—whether it is in terms of individual earnings (Mateos Romero et al., 2017) or macro-economic growth (Hanushek & Woessmann, 2012) and employment rates (Li et al., 2016). Lutz et al. (2021; see also Reiter et al., 2020) have estimated the skills of adult populations by education levels across many countries in all income settings, using a new composite indicator called skills in literacy adjusted mean years of schooling (SLAMYS). They show that educational improvement has not always been matched by an increase in skills. It is particularly the case in sub-Saharan Africa, e.g., Ghana and Nigeria, Latin America, and Central and South Asia, especially in places where population growth has a bearing on financing the quality and quantity of education. The authors hypothesize that the disparities in the human capital of

the working-age population will impact the socioeconomic development of the societies (see also for instance Hanushek & Woessmann, 2012), which could also affect the relationship between education and demographic parameters in terms of health, mortality, fertility, and migration.

The third uncertainty has to do with the returns to education. While the evidence is inconclusive in developing countries in recent years, Peet et al. (2015) for instance did not find a decline in returns to education over a large sample of countries, while Patrinos and Psacharopoulos (2020) show that skills and learning outcomes influence earnings, which could ensue from declining quality. Over-education issues, which occur when the supply of highly educated workforce overshoots the demand, can lower the returns to education (Davia et al., 2017), like it is the case in many Middle Eastern countries (Krafft et al., 2019). Low or declining returns to education occur as well when there is a mismatch between the study fields followed in higher education and the need of the labor market that requires ultimately the integration of the labor market demand in the educational planning process. This will become even more critical with the increasing role played by automation.

A last uncertainty, but very relevant in 2020–2021 is related to how education and demographic behavior will be impacted by the COVID-19 pandemic. It has already been shown that the lockdown measures have deprived some children and youth from pursuing their education. Depending on the pandemic duration, the effect for the affected cohorts could be substantial.

The prevalence of the above-mentioned challenges in the future is impossible to assess, which also makes it difficult to assess the influence that education may have on the demographic behaviors of populations in the future, in both more developed and less developed countries. Nevertheless, education today plays a major role in all societies and its influence at the macro- and micro-levels make it an essential element of all policies, as well as of population policies.

## References

- Barnum, H. N., & Sabot, R. H. (1976). *Migration, education and urban surplus labor: The case of Tanzania* (Development Centre Studies, Employment Series 13). Organisation for Economic Cooperation and Development, Development Centre.
- Bongaarts, J. (2003). Completing the fertility transition in the developing world: The role of educational differences and fertility preferences. *Population Studies*, 57(3), 321–335. <https://doi.org/10.1080/0032472032000137835>
- Bonnefoy, J., Morgan, A., Kelly, M. P., Butt, J., & Bergman, V. (2007). *Constructing the evidence base on the social determinants of health: A guide*. Universidad del Desarrollo/National Institute for Health and Clinical Excellence.
- Boyle, M. H., Racine, Y., Georgiades, K., Snelling, D., Hong, S., Omariba, W., Hurley, P., & Rao-Melacini, P. (2006). The influence of economic development level, household wealth and maternal education on child health in the developing world. *Social Science & Medicine*, 63(8), 2242–2254. <https://doi.org/10.1016/j.socscimed.2006.04.034>
- Breierova, L., & Duflo, E. (2004). *The impact of education on fertility and Child mortality: Do fathers really matter less than mothers?* (NBER Working Paper 10513). National Bureau of Economic Research; see <http://www.nber.org/papers/w10513>
- Buber-Ennsner, I., Kohlenberger, J., Rengs, B., Al Zalak, Z., Goujon, A., Striessnig, E., et al. (2016). Human capital, values, and attitudes of persons seeking refuge in Austria in 2015. *PLoS ONE*, 11(9), e0163481. <https://doi.org/10.1371/journal.pone.0163481>
- Caldwell, J. C. (1982). *Theory of fertility decline*. Academic Press Inc.
- Chicoine, L. E. (2012). *Education and Fertility: Evidence from a Policy Change in Kenya* (IZA Discussion Paper 6778). Institute for the Study of Labor (IZA); see <http://econpapers.repec.org/paper/izaizadps/dp6778.htm>
- Choe, M. K., & Retherford, R. D. (2009). The Contribution of education to South Korea's fertility decline to 'Lowest-Low' level. *Asian Population Studies*, 5(3), 267–288. <https://doi.org/10.1080/17441730903351503>
- Cleland, J., & Wilson, C. (1987). Demand theories of the fertility transition: An iconoclastic view. *Population Studies*, 41(1), 5–30. <https://doi.org/10.1080/0032472031000142516>
- Cutler, D. M., & Lleras-Muney, A. (2006). *Education and health: Evaluating theories and evidence* (NBER Working Paper 12352). National Bureau of Economic Research. <https://doi.org/10.3386/w12352>
- Davia, M. A., McGuinness, S., & O'Connell, P. J. (2017). Determinants of regional differences in rates of over education in Europe. *Social Science Research*, 63, 67–80. <https://doi.org/10.1016/j.ssresearch.2016.09.009>
- David, A. M., & Nordman, C. J. (2017). Education mismatch and return migration in Egypt and Tunisia. *Space Populations Societies*, 2017(1). Online. <https://doi.org/10.4000/eps.7110>
- Docquier, F., & Marfouk, A. (2006). Chapter 5: International migration by educational attainment (1990–2000). In C. Ozden & M. Schiff (Eds.), *International migration, remittances and development* (pp. 151–200). Palgrave Macmillan.
- Farooq, G. M., & Simmons, G. B. (Eds.). (1985). *Fertility in developing countries: An economic perspective on research and policy issues*. Macmillan.
- Fuchs, R., & Goujon, A. (2014). Future fertility in high-fertility countries. In W. Lutz, W. P. Butz, & K. C. Samir (Eds.), *World population and human capital in the 21st century* (pp. 147–225). Oxford University Press.
- Galor, O., & Weil, D. N. (1999). From Malthusian stagnation to modern growth. *American Economic Review*, 89, 150–154.
- Gietel-Basten, S., & Scherbov, S. (2020). Exploring the 'True Value' of Replacement Rate Fertility. *Population Research and Policy Review*, 39, 763–772. <https://doi.org/10.1007/s11113-019-09561-y>
- Gjonca, A., Aassve, A., & Mencarini, L. (2008). Albania: Trends and patterns, proximate determinants and policies of fertility change. *Demographic Research*, 19, 261–292.
- Goujon, A., & Samir, K. C. (2008). The past and future of human capital in South-East Asia. *Asian Population Studies*, 4(1), 31–56. <https://doi.org/10.1080/17441730801966428>
- Goujon, A., Lutz, W., & KC, S. (2015). Education stalls and subsequent stalls in African fertility: A descriptive overview. *Demographic Research*, 33(article 47), 1281–1296.
- Goujon, A., Samir, K. C., Springer, M., Barakat, B., & Potancoková, M. (2016). A harmonized dataset on global educational attainment between 1970 and 2060 – An analytical window into recent trends and future prospects in human capital development. *Journal of Demographic Economics*, 82(3), 315–363. <https://doi.org/10.1017/dem.2016.10>
- Goujon, A., Marois, G., & Sabourin, P. (2020). Deriving Niger's demographic and education future to 2062 with Stakeholders: Which Results? *Population Research and Policy Review*, 40, 617–627. <https://doi.org/10.1007/s11113-020-09582-y>
- Hanushek, E. A., & Woessmann, L. (2012). Do better schools lead to more growth? Cognitive skills, economic outcomes, and causation. *Journal of Economic Growth*, 17, 267–321.
- Hazan, M., & Zoabi, H. (2015). Do highly educated women choose smaller families? *The Economic Journal*, 125(587), 1191–1226. <https://doi.org/10.1111/econj.12148>
- Jejeebhoy, S. (1995). *Women's education, autonomy, and reproductive behaviour: Experience from developing countries*. Clarendon Press.

- Jones, G. W. (2019). Ultra-low fertility in East Asia: Policy responses and challenges. *Asian Population Studies*, 15(2), 131–149. <https://doi.org/10.1080/17441730.2019.1594656>
- Kebede, E., Lutz, W., & Goujon, A. (2019). Stalls in Africa's fertility decline partly result from disruptions in female education. *Proceedings of the National Academy of Sciences*, 116(8), 2891–2896. <https://doi.org/10.1073/pnas.1717288116>
- Kebede, E., Striessnig, E., & Goujon, A. (2021). The relative importance of women's education on fertility desires in sub-Saharan Africa: A multilevel Analysis. *Population Studies*. <https://doi.org/10.1080/00324728.2021.1892170>
- Krafft, C., Branson, Z., & Flak, T. (2019). What's the value of a degree? Evidence from Egypt, Jordan and Tunisia. *Compare: A Journal of Comparative and International Education*. <https://doi.org/10.1080/03057925.2019.1590801>
- Kravdal, Ø. (2000). A search for aggregate-level effects of education on fertility, using data from Zimbabwe. *Demographic Research*, 3(article 3). <https://doi.org/10.4054/DemRes.2000.3.3>
- Le Blanc, D. (2015). *Towards integration at last? The sustainable development goals as a network of targets (DESA Working Paper 141)*. United Nations, Department of Economic and Social Affairs.
- Li, T., von Davier, M., Hancock, G. R., & Kirsch, I. S. (2016). The prediction of labor force status: Implications from international adult skill assessments. *ETS Research Report Series*, 2016(1), 1–20.
- Lin, J. Y., & Pleskovic, B. (Eds.). (2008). *Higher education and development. Annual World Bank conference on development economics—Regional 2008*. World Bank Group.
- Liu, D. H., & Raftery, A. E. (2020). How do education and family planning accelerate fertility decline? *Population and Development Review*, 46(3), 409–441. <https://doi.org/10.1111/padr.1234>
- Loichinger, E., & Marois, G. (2018). Education-specific labour force projections for EU-28 countries. In W. Lutz, A. Goujon, K. C. Samir, M. Stonawski, & N. Stilianakis (Eds.), *Demographic and human capital scenarios for the 21st century* (pp. 43–51). Publications Office of the European Union. <https://doi.org/10.2760/835878>
- Low, M. D., Low, B. J., Baumler, E. R., & Huynh, P. T. (2005). Can education policy be health policy? Implications of research on the social determinants of health. *Journal of Health Politics, Policy and Law*, 30(6), 1131–1162. <https://doi.org/10.1215/03616878-30-6-1131>
- Lutz, W., & Skirbekk, V. (2014). How education drives demography and knowledge informs projections. In W. Lutz, W. P. Butz, & K. C. Samir (Eds.), *World population and human capital in the twenty-first century*. Oxford Scholarship Online. <https://doi.org/10.1093/acprof:oso/9780198703167.001.0001>
- Lutz, W., Skirbekk, V., & Testa, M. R. (2006). The low-fertility trap hypothesis: Forces that may lead to further postponement and fewer births in Europe. *Vienna Yearbook of Population Research*, 2006, 167–192.
- Lutz, W., Butz, W. P., & KC, S. (2014). *World population and human capital in the twenty-first century*. Oxford Scholarship Online. <https://doi.org/10.1093/acprof:oso/9780198703167.001.0001>
- Lutz, W., Goujon, A., Samir, K. C., Stonawski, M., & Stilianakis, N. (2018). *Demographic and Human capital scenarios for the 21st century: 2018 assessment for 201 countries*. Publications Office of the European Union. <https://doi.org/10.2760/41776>
- Lutz, W., Reiter, C., Özdemir, C., Yıldız, D., Guimaraes, R., & Goujon, A. (2021). Skills-adjusted human capital shows rising global gap. *Proceedings of the National Academy of Sciences*, 118(7). <https://doi.org/10.1073/pnas.2015826118>
- Marois, G., Bélanger, A., & Lutz, W. (2020). Population aging, migration, and productivity in Europe. *Proceedings of the National Academy of Sciences*, 117(14), 7690–7695. <https://doi.org/10.1073/pnas.1918988117>
- Martín-García, T. (2008). A reassessment of the role of women's education in existing fertility research. *Genus*, 64(1/2), 131–157; see <http://www.jstor.org/stable/41430838>
- Mateos Romero, L., Murillo Huertas, I. P., & Salinas Jiménez, M. M. (2017). Wage effects of cognitive skills and educational mismatch in Europe. *Journal of Policy Modeling*, 39(5), 909–927.
- Meyer, J. W., Ramirez, F. O., & Soysal, Y. N. (1992). World expansion of mass education, 1870–1980. *Sociology of Education*, 65(2), 128–149.
- Morris, P. (1996). Asia's four little tigers: A comparison of the role of education in their development. *Comparative Education*, 32(1), 95–109. <https://doi.org/10.1080/03050069628948>
- National Institute of Population and Social Security Research. (2020). *Japan Statistical Yearbook 2020*. Ministry of Internal Affairs and Communications, Statistics Bureau.
- National Research Council. (2001). *Diffusion processes and fertility transition: Selected perspectives*. In J. B. Casterline (Edit.). Committee on population, division of behavioral and social sciences and education. National Academy Press.
- National Research Council. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. In J. W. Pellegrino & M. L. Hilton (Eds.), *Committee on Defining Deeper Learning and 21st Century Skills, Board on Testing and Assessment and Board on Science Education, Division of Behavioral and Social Sciences and Education*. The National Academies Press.
- Notestein, F. W. (1945). Population: The long view. In T. W. Schultz (Edit.). *Food for the World*. University of Chicago Press.

- Osili, U. O., & Long, B. T. (2008). Does female schooling reduce fertility? Evidence from Nigeria. *Journal of Development Economics*, 87(1), 57–75. <https://doi.org/10.1016/j.jdeveco.2007.10.003>
- Park, E. H. (2020). Ultra-low fertility and policy response in South Korea: Lessons from the case of Japan. *Ageing International*, 45, 191–205. <https://doi.org/10.1007/s12126-020-09365-y>
- Patrinos, H. A., & Psacharopoulos, G. (2020). Chapter 4: Returns to education in developing countries. In S. Bradley & C. Green (Eds.), *The Economics of Education: A Comprehensive Overview. Second Edit* (pp. 53–64). Academic Press.
- Peet, E. D., Fink, G., & Fawzi, W. (2015). Returns to education in developing countries: Evidence from the living standards and measurement study surveys. *Economics of Education Review*, 49, 69–90. <https://doi.org/10.1016/j.econedurev.2015.08.002>
- Pickett, K. E., & Pearl, M. (2001). Multilevel analyses of neighbourhood socioeconomic context and health outcomes: A critical review. *Journal of Epidemiology and Community Health*, 55(2), 111–122.
- Pradhan, E., & Canning, D. (2015). *The effect of educational reform in Ethiopia on Girls schooling and fertility* (Program on the Global Demography of Aging. PGDA Working Paper 128). Department of Global Health and Population, Harvard School of Public Health.
- Reiter, C., Özdemir, C., Yildiz, D., Goujon, A., Guimaraes, R., & Lutz, W. (2020). *The demography of skills-adjusted human capital* (IIASA Working Paper WP-20-006). International Institute for Applied Systems Analysis.
- Ross, C. E., & van Willigen, M. (1997). Education and the subjective quality of life. *Journal of Health and Social Behavior*, 38, 275–297.
- Samir, K. C., & Lutz, W. (2017). The human core of the shared socioeconomic pathways: Population scenarios by age, sex and level of education for all countries to 2100. *Global Environmental Change*, 42, 181–192. <https://doi.org/10.1016/j.gloenvcha.2014.06.004>
- Skeldon, R. (2008). *Migration and development*. United Nations Expert Group Meeting on International migration and development in Asia and the Pacific. United Nations Economic and Social Commission for Asia and the Pacific Population Division, Department of Economic and Social Affairs Bangkok, Thailand. September 20–21, 2008, Bangkok, TH: ESCAP; see [https://www.un.org/en/development/desa/population/events/pdf/expert/14/P04\\_Skeldon.pdf](https://www.un.org/en/development/desa/population/events/pdf/expert/14/P04_Skeldon.pdf)
- Testa, M. R. (2014). On the positive correlation between education and fertility intentions in Europe: Individual- and country-level evidence. *Advances in Life Course Research*, 21, 28–42. <https://doi.org/10.1016/j.alcr.2014.01.005>
- Tsuya, N. O. (2015). Below-replacement fertility in Japan: Patterns, factors, and policy implications. In R. R. Rindfuss & M. K. Choe (Eds.), *Low and lower fertility* (pp. 87–106). Springer. [https://doi.org/10.1007/978-3-319-21482-5\\_5](https://doi.org/10.1007/978-3-319-21482-5_5)
- UNESCO. (2019). *New methodology shows that 258 Million children, adolescents and youth are out of School* (Fact Sheet 56). UNESCO Institute for Statistics (UIS).
- United Nations. (1995). *Population and development: Programme of action adopted at the international conference on population and development, Cairo 5–13 September 1994* (Vol. 1). United Nations Population Fund (UNFPA).
- United Nations. (2019). *World population prospects 2019*. New York, NY, United Nations, Department of Economic and Social Affairs, Population Division.
- Wang, H., et al. (2014). Global, regional, and national levels of neonatal, infant, and under-5 mortality during 1990–2013: A systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*, 384(9947), 957–979. [https://doi.org/10.1016/S0140-6736\(14\)60497-9](https://doi.org/10.1016/S0140-6736(14)60497-9)
- Wittgenstein Centre for Demography and Global Human Capital. (2018). *Wittgenstein Centre Data Explorer Version 2.0 (Beta)*. Wittgenstein Centre for Demography and Global Human Capital; see <http://www.wittgensteincentre.org/dataexplorer>



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## Introduction

The success of population policies is determined by how tailored they are to the needs, wants, and socio-cultural context of the populations they serve. For effective and equitable policies, specific population sub-groups should be targeted as part of broader population policies that have key features contributing to broader development goals in the long-run (May, 2012). Fundamentally, population policies have three main components: fertility, mortality, and migration. To generate effective and equitable policies, governments will need to use a combination of both direct and indirect policy levers in order to address these three main components of population dynamics. In particular, focusing on expanding rights-based policy levers to specific groups within these realms at the national or even sub-national levels can help create more effective policies.

As mentioned, population policy levers come in two main forms, namely direct (or explicit) and indirect (or implicit). Direct policy levers specifically focus on population targets, such as pronatalist or anti-natalist policies, increased access to contraceptive services, and Universal Health Coverage (UHC). By contrast, indirect

policy levers are those that ultimately influence and are correlated with changes in the demographic components and population age structure, but do not have a direct causal relationship. These include increased access to education, legal reforms, job creation, etc. Within these efforts, it is important in population policies to address gender, adolescents, older adults, disabled people, migrants, and other groups, such as Indigenous peoples. Some age and sex groups may require specific policy interventions at different stages of the demographic transition. For example, young people will need to be prioritized in high fertility countries, while older people will need more attention in rapidly aging populations. Spending time considering the priority groups within the population can have substantial positive consequences for the effectiveness of policy interventions and is a key step towards achieving greater equity.

This chapter explores the various priority setting frameworks that can be used to determine different priorities and groups on which policies need to focus. Thereafter, the chapter looks at distinct sub-groups in population including gender, adolescents and youth, aging and elderly populations, migrants, persons with disabilities, and others. The section suggests possible population policies for these sub-groups. Finally, the chapter examines how harnessing various synergies between population sub-groups' interventions can strengthen population policies overall.

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## Priority-Setting Frameworks for Identifying Priority Groups

To make policy more effective, countries should work to identify individual groups that require special consideration or might be critical to target in order to achieve the policy's goal. Priority setting is a broad, complex task that requires input from and consultations with numerous stakeholders. Engaging stakeholders is often seen as a pre-requisite to create an acceptable policy that policymakers, bureaucrats, and citizens feel they have ownership to adhere to and enact fully.

Despite the enormity of the task, there are numerous frameworks that can help governments and policymakers set priorities to identify potential groups to target in policy making. Common frameworks for health and development priority-setting include: Program Budgeting and Marginal Analysis (PBMA); Multi-Criteria Decision Analysis (MCDA); Accountability for Reasonableness (A4R); and Burden of Disease with Cost-Effective Analysis (BOD/CEA). Each framework has its own approach, utility, and drawbacks (see Table 31.1).

With respect to population policies, there are various considerations to acknowledge when using the frameworks mentioned above. PBMA provides a strong economic rationale for prioritization and engages a variety of stakeholders in decision-making. However, quantifying the priority of basic human rights through deciding whether or not to fund the provision of healthcare, contraceptive services, education, etc., is a difficult and value-based task that may not always align with the needs of the entire population. This is a similar concern with MCDA and BOD/CEA, as one must weigh the benefits of using a criteria-based method with the consequences of not prioritizing rights-based interventions that are still needed by some groups in the country. Consequently, prioritizing should be seen as a way to focus on select interventions for the greatest impact, but not the only way to invest in various development areas. Moreover, A4R has many positive attributes for priority-

setting in population policies because of its focus on vulnerable communities and engagement with the public. While these benefits may make it more difficult and costly to synthesize into policy directions, countries must weigh how this level of buy-in may result in greater participation and uptake of the policy. Finally, many of these frameworks (except BOD/CEA) prioritize stakeholder engagement. Including stakeholder consultations, particularly with vulnerable or often-marginalized groups who are impacted by the policy, should be a central tenant of any priority setting to ensure the policy's appropriateness and acceptability (Razavi et al., 2020).

Overall, decisions regarding priority-setting should be made after implementing and using rational evidence-based frameworks. Often, multi-criteria decision-making analyses are seen as the optimal method because of the way it is able to use priorities and measurable criteria, which makes it easier to evaluate the performance matrix. However, much of the success of using these frameworks depend on the long-term commitment of policymakers. In particular, it is integral for governments to try to introduce longer-term planning for priorities, as this reduces the burden on ad-hoc priority setting, which can often overlook some priority groups that are critical to designing equitable policy (Baltussen & Niessen, 2006). While shaping long-term policy is challenging and subject to surviving regime-changes, endeavoring to make evidence-based policies that are as effective and equitable as possible should be the goal of every government regardless of their tenure.

## Current Priorities in the Development Landscape

One of the important things to consider in priority-setting is the development landscape. Over the past 50 years, the narrative surrounding population policy has shifted substantially. From a traditional 'population control' approach to the 'reproductive rights' movement of the 1970s and 1980s, and the contemporary rights-based

**Table 31.1** Frameworks for Priority Setting

Priority Setting Framework	Program Budgeting and Marginal Analysis (PBMA)	Multi-Criteria Decision Analysis (MCDA)	Accountability for Reasonableness (A4R)	Burden of Disease with Cost-Effective Analysis (BOD/CEA)
<b>Description</b>	Employs economic principles of opportunity cost and marginal analysis to generate a list of priorities to support or defund	Considers multi-faceted information sources and establishes preferences based off of pre-determined objectives	Applies fairness principle through: (1) publicity, (2) relevance, (3) revisions/appeals, and (4) enforcement to set priorities based on ethics and fairness	Applies BOD and CEA to find interventions that target most important issues in the most cost-effective way
<b>Major benefits</b>	Utilizes key economic principles Opportunity to engage public through consultations and advisory groups	Matrix based off of established priorities Weighs impact and benefits of various policies Strong guide for complex decision-making	Prioritizes vulnerable populations Makes decision-making publicly accessible to all	Ensures financial restraint and responsibility Uses internationally reputed priority-setting process
<b>Major drawbacks</b>	Does not require participation of vulnerable groups or specific criteria to select stakeholders, which could impact how the decision matrix is implemented	Expensive and time consuming because of consultative nature Difficulties weighing criteria, as benefits might be different by social group	Sociocultural context-specific Hard to define abstract concepts like ‘ethics’ and ‘fairness’ Engagement of public may be overwhelming and difficult to integrate diverse viewpoints into a cohesive vision	Prioritizes financial perspective Neglects rare diseases or diseases that are more prevalent in only specific areas/ populations Limited equity considerations
<b>Stakeholders to engage</b>	Health officials Policymakers NGOs Government administrators and financial personnel Private sector Citizens	Citizens Community leaders Health officials Finance and government Policymakers NGOs Private sector	Citizens Technical experts Policymakers NGOs Communications officials	Citizens Donors NGOs Policymakers Academics and researchers Health officials Financial and government administrators
<b>Other considerations</b>	Role of stakeholders, including identifying growth, defining decision criteria, prioritizing biases	Defining priority areas and criteria Developing a scoring system and effective matrix	Methods for challenging, appealing, or revising decisions Organization and regulation of priority-setting process	Methodology and accuracy for burden of disease and cost metrics

Source: Adapted from Razavi et al. (2020)

population policies that are a legacy of the 1994 International Conference on Population and Development (ICPD) in Cairo. In summary, there have been substantial paradigm shifts in population policy. These efforts have expanded

the scope and approach of population policy, including how we look at gender within population policies. These shifts demonstrate how broader development policy shifts influence the criteria for frameworks, making it important to

frequently monitor and evaluate both criteria and priorities.

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## Addressing Gender in Population Policies

Gender has become a dominant part of the development agenda across multilateral institutions, development agencies, governments, and NGOs. While it is important to expand access to reproductive health services for women and address their needs in population policies, a single-sex approach cannot be successful in itself. Instead, population policies must include all genders in order to be effective. Responding to this concern, many countries have worked to mainstream gender considerations and equity in their national plans, policies, and programs.

## Addressing Women in Population Policies

Recent population policy efforts have extensively focused on women's access to family planning, safe motherhood, pregnancy prevention, and safe abortion. Programs and development agendas, including the UN Sustainable Development Goals (2015–2030), continue to focus on these not only because they are an essential part of human rights, but also because there are still considerable gains to be made in these realms around the world. While there has been significant improvement in these areas in past decades, there needs to be continued attention and sustained efforts on women's sexual and reproductive health rights to continue to affect change and meet these development goals. Direct policy levers that address sexual and reproductive health rights should continue to be combined with indirect policy levers to impact demographic outcomes.

In terms of direct policy levers, expanding access to family planning and universal health coverage can be a critical way to combat many of the factors that affect female fertility and mortality. Firstly, the past few decades have seen

unprecedented expansion in access to family planning, which has allowed women to have increased control over their reproductive lives by avoiding unwanted pregnancies and practicing birth spacing and birth limiting. However, many women around the world still have high levels of unmet need for family planning. Given this reality, it is important that governments around the world continue to work on this important issue. Access to contraception should not be seen as solely delivering a right, but government should also recognize its importance in improving the health and welfare of women and children, in addition to the economic and social benefits (Ezeh et al., 2012). In addition to family planning, governments should expand access to Universal Health Coverage, as this will not only help develop a mechanism for other interventions, but can also help address critical maternal health issues that result in high maternal mortality around the world, particularly in low- and middle-income countries (May & Rotenberg, 2020). Working concomitantly to address family planning and UHC as direct policy levers in population policy can help leverage tangible impact on the lives of women around the world.

Simultaneously, policymakers should address fertility through a combination of indirect policy levers. Initially, governments' policies should emphasize women's empowerment. Having increased autonomy over reproductive health, financial matters, employment outside the home, and household decision-making can be both a policy lever on its own and a strong outcome of other family planning efforts. Investing in women's empowerment through development programs that encourage employment and autonomy can support fertility reduction. Secondly, investing in women's education can have significant impacts on future employment, greater earning potential, improved health outcomes, and delayed age of marriage and childbirth. Overall, investing in women's education and providing safe opportunities for girls to attend school can translate into higher standards of living for a woman and her family, including access to family planning. Finally, legal reforms can also support the fertility transition, as they can help

address inheritance laws, which is a driver of early marriage and childbirth. By extending the legal age of marriage and recognizing greater landholding and citizen rights for women, countries may delay the age of sexual debut and first marriage, which may contribute to decreasing fertility levels. However, none of these interventions can act alone. Rather, it is the synergies between these policies that will have the greatest impact on addressing women's needs (May & Rotenberg, 2020). By using some of the priority setting frameworks, such as PBMA and MCDA to identify and align these synergies can further improve the efficacy of these policy interventions.

### Addressing Men in Population Policies

While traditional population policy and reproductive health efforts focused exclusively on women, it is becoming increasingly apparent that men must also be involved in these efforts. Men can play critical roles in decisions surrounding family planning, migration, and health-seeking behavior, which make them important to address in all population policies. The 1994 ICPD in Cairo was seminal in changing this paradigm and engage men. In fact, participants urged governments to take stronger action in the ICPD's *Programme of Action* (PoA):

... special efforts should be made to emphasize men's shared responsibility and promote their active involvement in responsible parenthood, sexual and reproductive behavior including family planning; prenatal, maternal child health; prevention of sexually transmitted diseases, including HIV; prevention of unwanted and high-risk pregnancies; shared control and contribution to family income, children's education, health and nutrition; recognition and promotion of the equal value of children of both sexes. Male responsibilities in family life must be included in the education of children from the earliest ages. Special emphasis should be placed on the prevention of violence against women and children (United Nations, 2014: para. 4.27).

Since then, the 1994 ICPD has catalyzed a lot of focus on including men in population policies.

Governments have adopted a myriad of suggestions to improve communication and information campaigns to change behavior, address traditional gender norms, and incorporate gender as a lens in health policy. There has been some success with these programs as seen in Kenya and Zimbabwe (see Example 31.1), as well as in Colombia, Pakistan, Honduras, and South Africa, among others (Sternberg and Hubley, 2004). These efforts have catalyzed a conversation, but there is still more to be done to include men in population policies.

#### Example 31.1: Male-Targeted Family Planning Campaigns in Kenya and Zimbabwe

As countries around the world seek to include men in family planning campaigns, Kenya and Zimbabwe have tried original strategies to achieve this goal. In Kenya, campaigns tried a series of consultation strategies. This study found that male clients were more participatory in consultations when topics were wide-ranging including social, economic, and sexual health issues compared to individual consultations about sexual health. In Zimbabwe, programs tried mass-media strategies to encourage men to participate in family planning. They found that men were more successfully targeted when these campaigns were shared in media that already had pre-established male audiences, such as newspapers and televised football games. Overall, the combination of these studies showed that communication must be adapted to male audiences in order to be effective. Governments and organizations developing these campaigns need not only to consider where they place the campaign (in terms of established male audience), but also look at the type of messaging that can attract attention and relate to men. The study also suggested using a combination of messages for greater efficacy and also address gender roles to ensure that family planning becomes a partnership, rather than perpetuating existing inequalities in gender roles (World Health Organization, 2002).

However, since most countries do not have an official policy to engage in reproductive health,

all countries need to consider how to adapt these lessons to their own populations. As an often overlooked group in population policy formation, men urgently need to be included to achieve the Sustainable Development Goals (SDGs) and other development goals (World Health Organization, 2002), particularly in countries who are seeking to capture a demographic dividend.

## Adolescents and Youth

Adolescents and youth are a critical piece of the population policy puzzle. It is important to address young people in population policies because of their current and future impact on economies, society, and democracy. The right combination of both direct and indirect policy levers for youth can play a key role in shaping the demographic trajectory of a country. This influence on the demographic destiny make youth one of the most important population sub-groups to address in population policy. This is particularly the case in countries facing a youth bulge – where a large share of the population is comprised of children and youth, often due to the impact of declining infant mortality and continued high fertility rates – because their age structure and policies are largely dependent on these demographic changes (Lin, 2012).

One of the important aspects of addressing the needs of children and youth is engaging them in the policy-making process. The UN Convention on the Rights of the Child, adopted in 1989, was one of the seminal documents that recognized the importance of having children and youth engaged in the decision-making process. This sentiment was echoed in the ICPD in 1994, which specifically focused on provisions addressing young women and sexual and reproductive rights (Mburu et al., 2013). In fact, one of the key objectives of the section on Children and Youth from the ICPD *Programme of Action* (PoA) highlights this need:

To meet the special needs of adolescents and youth, especially young women, with due regard for their own creative capabilities, for social, family and community support, employment opportunities,

participation in the political process, and access to education, health, counselling and high-quality reproductive health services (United Nations, 2014: para. 6.7b).

This emphasis on not only addressing adolescents' needs, but also acknowledging children and youth's evolving capacity to be engaged with decision-making is one of the important paradigms shifts that came out of the 1994 ICPD. More recently, the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) have further enshrined these rights for adolescents and youth. In all of these key documents, the emphasis on decision-making roles in sexual and reproductive health and associated policies is an important distinction. Youth are not traditionally included in these discussions because of: cultural barriers and stigma; the tension between protection and engagement; and a lack of clarity surrounding age-appropriate methods for engagement on this topic. However, several studies have shown that adolescents as young as thirteen do have the capacity and the interest to engage in these important decisions. Therefore, it is important to engage this population in policy- and decision-making through a protective framework that balances the rights of children with the age appropriate protections on participation (Clyde et al., 2013).

In addition to engaging with youth populations to address their needs, governments must consider how to target youth within population policies. Their policies for children and youth must focus on three main areas – fertility, mortality, and migration – to reap the benefits for their demographic transition and changing age structure.

## Fertility

The sexual and reproductive health rights of adolescents are often overlooked in family planning programs. The omission of appropriate and available services for this subset of the population has resulted in high rates of unmet need for family planning and unwanted pregnancies, and equipping them with less knowledge about, and

access to, services for sexually transmitted infections (STIs), especially HIV. It is important to close these gaps in services and knowledge in order to improve services for adolescents. In addition, governments must also make efforts to combat some of the more social and economic barriers youth and adolescents face. For example, social norms surrounding sexual and reproductive health and attitudes of parents and healthcare workers influence the accessibility and availability of sexual and reproductive health services for this population. Often, these factors serve as barriers to information and services. In addition to the social barriers, financing is often a challenge for youth, as many health insurance schemes do not finance family planning. This is an important barrier for youth, as parents or youth may be unwilling or unable to facilitate access to these program and services. Finally, some programs may not have appropriate links between pediatric and adult services. By implementing adolescent-specific approaches, there can be greater coverage of this population in family planning policies and programs (Mburu et al., 2013). While directly targeting adolescents can be challenging, some countries have been able to implement youth reproductive health policies successfully (see Example 31.2). Therefore, focusing efforts on education and behavioral changes in communities for youth, parents, and healthcare workers, in addition to expanding access to appropriate services should be priorities for governments.

### **Example 31.2: Kenya's Adolescent Reproductive Health and Development Policy**

In Kenya, the Adolescent Reproductive Health and Development Policy (ARHD) has had an impact on the reproductive health and well-being of its youth. Implemented in 2003, the ARHD has focused on expanding access to adolescent sexual and reproductive health services through collaboration with both the public and private sectors. The implementation of this policy has helped to improve adolescent health and has delineated guidance for how to address the needs of this population in quality- and rights-based ways. Given that the majority of citizens in

Kenya are under the age of 20, the success of this important initiative has not only had an impact in this sphere, but also catalyzed other strategies and guidelines for adolescent-focused development, including the National Youth Policy (2007) and the National Guidelines for Youth-Friendly Services (2005), which have further supported this policy's implementation. While this promising initiative has yielded some positive results, there are also opportunities for better coordination, awareness, stakeholder engagement, and resources to improve the quality, acceptability, availability, and reliability of services for this population (Graff, 2013).

In addition to these more direct policy levers, there are also indirect policy levers that can impact adolescent fertility: female education, empowerment, and legal reforms. As mentioned in the section “[Addressing women in population policies](#)” of this chapter, these indirect levers are important for the socioeconomic health of a country, in addition to delivering on women's rights, particularly for adolescents. Firstly, increasing access to female education can have numerous impacts on the socioeconomic development of a community. In the context of adolescent fertility, increasing access to education may be positively associated with decreasing birth rates, as it can help postpone marriage, childbearing, and increase potential for earnings. Similarly, investing in safe and acceptable educational environments can empower women to continue their education so that they are able to find better job opportunities and employment outside the home (May & Rotenberg, 2020). Moreover, women's empowerment is both an outcome of addressing adolescent fertility and a key policy lever in its own right. Activities like financial independence, paid employment outside the home, and higher levels of education and literacy can be associated with participation in household decision-making and increased use of family planning for adolescents (Prata et al., 2017).

Given the impact of both direct and indirect measures to address adolescent fertility, it is important that governments use a combination of these policy levers. While Kenya (see Example

31.2) has mainly implemented direct policy levers, many countries, including Ghana, have combined efforts to generate effective population policies (see Example 31.3).

**Example 31.3: Ghana’s Emphasis on Adolescents in Population Policies**

As one of the first countries in Africa to develop a comprehensive population policy, Ghana has had seen the positive impact of developing a robust consultation, implementation, and revision process after its initial top-down approach to policy formulation proved to be less effective (May, 2012). In particular, since the 1994 ICPD, Ghana has implemented strong reforms to strengthen provisions that address adolescent fertility through both indirect and direct approaches. After the ICPD, Ghana revised its policy to have a consultation process that engaged a multiplicity of stakeholders, including youth and adolescents. This, combined with strong policy leadership from the National Population Council and multiple action plans in different sectors, allowed Ghana to implement policies that reduced fertility through family planning and other development activities aimed at improving education and the quality of life. The policy’s focus on youth has also attracted support from multiple donors, who have supported the country’s efforts to increase knowledge and use of family planning. The success of the program is largely due to its consultative nature, broad scope, sustained commitment and engagement, and collaboration across ministries and sectors. It is also important to note that Ghana has found that engagement and collaboration across parents, educators, and institutions can facilitate greater success when focusing on youth in population policy (Kwankye & Cofie, 2015).

Thus, Ghana and Kenya provide examples of countries that have included strong provisions to address adolescent fertility in their population policies. These provisions are especially critical in sub-Saharan Africa given the impending “youth bulge” and associated population momentum. Other countries should also pay attention to these important efforts and use these best

practices to meet the needs of their adolescent populations.

**Mortality**

While population policies might not be able to specifically address mortality – or, really, mortality prevention – there are indirect, social policy levers that can impact mortality rates among adolescents. Since many of the leading causes of death are preventable for adolescents, strong social interventions can address these challenges. For instance, road injuries, HIV/AIDS, and self-harm dominate the causes of deaths for adolescents, each of which could be addressed through stronger health and social services. For road injuries, for instance, better legal frameworks and stricter regulations for licensing, helmets, and speed limits might reduce the incidence of road traffic injuries. Furthermore, HIV/AIDS can be addressed concomitantly through expanded access to family planning programs, and also through robust sexual health education programs in schools. Similarly, more mental healthcare options, open discussions regarding mental health, and educational programs in schools can help to manage the incidence of self-harm (World Health Organization, 2014). While these suggestions do not seem directly related to population policy, these social policy levers may indirectly impact these underlying causes of adolescent mortality.

**Migration**

Youth constitute a high proportion of migrants around the world, particularly economic migrants and refugees. Often, poor economic conditions in their home country push economic migrants to leave for countries where there are better socio-economic and educational opportunities. Similarly, conflict has been a main driver of the increase in the refugee population globally in the past decade with many of the refugees under the age of 30. While there are several reasons for migration that will be discussed in the section

“Migrants” of this chapter, there are particular population policies that governments can focus on to address some of the factors that push younger citizens to migrate to other countries.

Firstly, many migrants leave their home countries to pursue educational opportunities – particularly higher learning – in foreign countries. Sometimes, this experience abroad makes it challenging to return as the individual may decide that there are greater opportunities in the new country. These factors can be addressed through investing in stronger domestic education systems, research facilities, or enticements to return home. For instance, Singapore developed a policy that both addresses its education sector and repatriates many of its citizens who have gone abroad to study and teach. Under this policy, Singaporean professors are provided with generous salaries, research grants, and opportunities, which has led many young professors and their families to return to Singapore (Davie, 2019). In addition, this substantial investment in educational and research opportunities has strengthened the caliber of the academic institutions, which may help attract more domestic students to stay in Singapore, rather than go abroad (and eventually return home). They have also combined this with a pre-tenure PhD scholarship to bring promising scholars back to Singapore when they have completed their education abroad (Republic of Singapore, 2020). This example targets young families and expands higher educational opportunities to attract more youth to stay in the country. Other countries can adopt a similar model, by incentivizing high-quality academic institutions in their own countries, attracting domestic talent to return home, and encouraging domestic students to stay local rather than going abroad. This will not only help to address immediate migration, but also help to address the ‘brain drain’ in the longer term.

Secondly, the economic and employment prospects of youth can be a challenge for countries to keep young populations, particularly in countries where there is a large youth bulge and limited employment opportunities. In fact, in sub-Saharan Africa, the employment gap is so large that the IMF estimates that countries will need to create over 18 million jobs per year

between 2015 and 2035 to meet the demand of youth entering the labor force (International Monetary Fund, 2015). Therefore, countries will need to develop a strategy to employ youth in order to keep them in the country. These policies will have to be multi-sectoral, harnessing the capacity and initiating employment through partnerships with the private sector, non-agricultural ministries, and other countries to strengthen trade partnerships. By mobilizing this level of investment, countries will be able to create high paying and quality jobs to keep young people from leaving the country for better employment (International Monetary Fund, 2015).

Therefore, countries must employ a multi-sectoral approach to their youth and adolescent policies that combines a variety of direct and indirect policy levers in the realms of fertility, mortality, and migration. In addition, engaging youth in stakeholder consultation to develop population, health, and development policies is critical to ensure their needs are met and so that they have an enabling policy environment in which to thrive.

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## Aging Populations

While some populations are dealing with youth bulges, others are dealing with low or even negative population growth, which is often associated with population aging. Population aging can be a significant event for most countries. Usually, it is accompanied by a changing demographic age structure that results in fewer economically productive youth and adults. This often results in a high dependency ratio, with significant economic and social impacts. Even in countries with strong social services, aging populations present a challenge for the longevity of public pension systems and applies pressure to the strength and capacity of the health system (Ezeh et al., 2012). Given the significant impact of population aging, countries need to address it in their population policies – regardless of where they are in the demographic transition.

For countries with low population growth (less than 1% per year) or population decline (less than



zero percent growth per year), implementing effective aging policies is of critical importance. In these countries, massive subsets of the population are no longer working, and many will soon require increased healthcare and even long-term care. As these countries previously experienced a fertility transition, there are fewer children to look after their parents, and many have jobs or live away from home, which makes it prohibitive for them to care for their parents. Therefore, the state must play a large role in providing the health and day-to-day care required by these elderly populations. This will require policy interventions that expand the availability of retirement and long-term care homes, financial protections, and human resource development to care for these populations. In addition to these basic care needs, countries must also consider having effective retirement programs and pension benefits in order to support these elderly populations. This is a critical component of fiscal policy and should not be overlooked by these countries, given the severe economic consequences of not having an adequately robust pension system (Ezeh et al., 2012).

However, countries with rapid to moderate growth are not immune to these considerations. While much attention has been devoted to aging populations in Europe and North America, the Asia-Pacific region actually has over 600 million older people, making it the most rapidly aging region. Given that many of these countries in this region are simultaneously considered rapid- and moderate-growth countries, there is an urgent need for these countries to consider and mitigate the impacts of population aging. While these countries will not necessarily see the economic impact of labor shortages, as countries with lower population growth will, they will need to think through developing similar societal protections for aging populations. This should include considerations like developing pension plans, long-term care facilities, and health and human resources for health capacity to support an aging population (Harper, 2006).

Countries must also focus on developing or strengthening existing pension systems in order

to support older populations. For example, less than 20% of older populations in El Salvador and the Dominican Republic receive their pension, often due to high participation in the informal sector. In particular, governments must recognize how women might be particularly impacted by inefficient pension systems, as they generally have lower labor force participation, more time off for pregnancy, reduced wages, earlier retirement, and a longer life expectancy. These factors often result in higher rates of older-age poverty among women, resulting in governments needing to ensure they have adequate protection for women within these fiscal policies (Figliuoli et al., 2018). Therefore, governments will need to focus on how they can strengthen these social support systems to address and protect the aging population, particularly among women and those working in the informal sector.

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## Migrants

As one of the main pillars of demography, migration – including internal migration, emigration, and immigration – has a powerful impact on the population structure. When considering sub-groups to prioritize in population policies, migration is a key factor and must be looked at from the perspective of both sending country and recipient country. In many ways, migration can be a powerful force for: overcoming the challenges associated with an aging population; developing certain sectors of the economy for greater socioeconomic development; and planning forward for health and other resources. Given the multitude of impacts migrants have on the population, it is important to specifically consider them within population policies and interventions.

For many states, immigration is the main approach to enhancing population growth within population policies, as low birth rates that have no indication of turning around and declining death rates leave few other options. In these countries, the idea is that ‘replacement migration’ can offset both population aging and population decline.

Different variants of UN population projections suggest that there is a need for sustaining immigration in order to slow population aging and population decline. These two phenomena would have significant and wide-ranging impacts across all sectors of the economic, social, and political spheres, making it paramount for countries to have migration as a key component of their population policies. Many so-called ‘developed’ countries have already had this objective, including Germany, France, and the United Kingdom (see Example 31.4), but these countries will have to continue to have younger migrants to offset these demographic challenges (United Nations, 2001).

**Example 31.4: Germany’s Migration Strategy**

Demographic projections in Germany have informed the country’s migration strategy. When faced with rapid population aging and an impending population decline, the country has welcomed younger migrants to adapt to these challenges. Mass migration to Germany in the 1990s and after the period of economic growth in the late 2000s, has helped Germany to turn its declining fertility rate to a steady one. Recently, Germany’s renewed focus on attracting migrants and accepting refugees has helped to strengthen the economy. In addition, implementing better family support policies – even for non-citizens – has indirectly supported their goals of maintaining their fertility rate. In fact, in 2015, for the first time in 30 years, their fertility rate increased to 1.5 children per woman. While this is expected to remain steady, immigration has played a role in the country’s population growth. Steady immigration and continued strong economic growth could help Germany maintain a more constant demographic picture – making it a model for migration for demographic change within Europe (Heise, 2017).

However, these migration policies being used to combat demographic challenges must be accompanied by the appropriate social support for migrants, particularly refugee populations. Financial hardship; mental health issues; loss of academic credentials; language barriers; housing

challenges; stigma; and racism are systemic barriers for new migrants from low- and middle-income countries in the new countries of residence. Recipient countries need to enact social policies that enable these migrants to be protected and also have the support they need to thrive. For example, countries should have programs that can integrate migrant populations into the community. This could be done through language courses, pairing new migrants with other families, or instituting policies that accept credentials from around the world to make it easier for migrants to gain employment. Migration is an ongoing challenge for countries, but the well-being of migrants and refugees upon arrival should be a critical component of preparing population policies that include migration as a core tenant.

Moreover, migration is also critical to examine as an element of population policies for sending countries. Pro-migration policies might not always be advantageous for countries, as sending large pools of migrants to other countries can often result in labor shortages and ‘brain-drain’ at home. However, sometimes migration abroad can help with economic development through remittances and is, therefore, promoted by countries. For instance, the Philippines has sent for decades thousands of workers abroad. In turn, remittances from these workers account for nearly 10% of the country’s GDP (Ang, 2007). Some professions and educational institutions within the country – particularly in nursing – have shifted their focus to producing excess workforce, with the idea that these trained nurses could be exported to work in other parts of the world and send home remittances to help the economy. On the one hand, these types of policies have facilitated emigration and greater economic and professional opportunities. However, on the other hand, this has also exacerbated labor and distributional challenges, particularly in the health sector in the Philippines (Marcus et al., 2014). Countries must carefully plan such policies in accordance with global workforce demands, as these policies are not effective if the investments in training policies cannot be recouped through remittances. Therefore, these types of policies that focus on sending skilled workers for

remittances should be approached with significant caution and implemented only concomitantly with other policies that prioritize the labor, health, and demographic needs of the country.

Given the economic and demographic opportunities migrants can offer countries, it is important to consider this sub-group in population policies. However, as mentioned before, recipient countries must determine how they can enact broader social policies to protect and support migrants and refugees, in addition to providing them with resources and opportunities to fulfil their greatest potential. In addition, countries with excess labor force or youth bulges should consider how policies can both support domestic and international workforce needs, while also figuring out how these policies can help capture remittances for greater economic growth domestically. If countries enact these policies, they must strike a careful balance between overproduction of a certain sector and the needs of the domestic and international workforce to ensure migration is successful and beneficial for all parties.

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## Persons with Disabilities

Over one billion people – 15% of the world’s population – experience disability in some form (Kuper & Heydt, 2019). This population sub-group is frequently left out of population policies and not given access to family planning materials or information, which makes them a critical group to target in future population policy formation. In fact, in countries around the world, many persons with disabilities are still forced or coerced into sterilization, receive limited contraceptive choice, and experience systemic exclusion and violence in sexual and reproductive health systems. These are not only violations of persons with disabilities’ human rights, but they are also symbolic of a broader disregard for the important international, regional, and national agreements and legal mandates that protect the sexual and reproductive health rights of persons with disabilities (Frohman & Ortoleva, 2012).

Recognizing this gap in population and development policy, the ICPD PoA that was adopted in Cairo in 1994, began to recognize the rights and needs of persons with disabilities. In fact, the PoA strongly urged governments to take concrete steps to include persons with disabilities in sexual and reproductive health:

Governments at all levels should consider the needs of persons with disabilities in terms of ethical and human rights dimensions. Governments should recognize needs concerning, *inter alia*, reproductive health, including family planning and sexual health, HIV/AIDS, information, education and communication. Governments should eliminate specific forms of discrimination that persons with disabilities may face with regard to reproductive rights, household and family formation, and international migration, while taking into account health and other considerations relevant under national immigration regulations (United Nations, 2014: para. 6.30).

Despite this robust effort to improve the rights of persons with disabilities, limited progress and unclear legal mandates led the United Nations to strengthen the sexual and reproductive health rights of persons with disabilities by including clauses on it in its Convention on the Rights of Persons with Disabilities (2006). This Convention sought to clarify and crystalize the rights of persons with disabilities to retain fertility (Article 6) and to have the highest-level of attainable health, including access to sexual and reproductive health rights and other population-based public health programs (Article 25), among others.

Beyond these agreements, access to sexual and reproductive health services is an important part of Sustainable Development Goal 3, to ensure healthy lives and promote well-being. One of its sub-indicators, 3.7, does measure expanding access to family planning and contraception. However, the data from this indicator demonstrates, so far, that persons with disabilities often struggle to have their needs met in a rights-based way, and are, instead more likely to use irreversible contraceptive methods and be sterilized against their will (Kuper & Heydt, 2019). Therefore, significant barriers persist for both men and women with disabilities within

family planning and population policies, despite international agreements that have sought to bring policymakers' attention to the sexual and reproductive rights of persons with disabilities.

Firstly, some of these barriers stem from physical accessibility issues, which impacts persons with mobility impairments. Limited access to accessible transport and far distances might prevent persons with disabilities from attending health services for their sexual and reproductive health needs. Furthermore, many clinics around the world lack access to physical accessibility features like ramps, accessible examination tables, or large enough rooms for a person using a wheelchair or with mobility challenges. Secondly, the lack of accessible information and communication provides a significant barrier for many persons with disabilities. Printed information is often not available in Braille, larger print, or simple language and graphics. Persons with hearing impairments or deaf individuals will require sign language interpretation, yet these services are not common in many parts of the world. While some may choose to overcome these physical and information and communication barriers by bringing a family member or known individual to accompany them, the lack of privacy and autonomy to access health services, particularly for an often-taboo topic like sexual and reproductive health, is a significant barrier. Finally, health systems issues account for several of the other barriers that persons with disabilities face. Namely, healthcare providers' attitudes towards persons with disabilities are often negative or paternalistic, which can impact the quality and acceptability of the services they receive. This may sometimes stem from providers' lack of knowledge of persons with disabilities or their needs, but it can cause a lack of adequate coordination or, again, impact the quality and acceptability of care they receive. Lastly, the lack of national health services and universal health coverage significantly impacts persons with disabilities access to sexual and reproductive health services. Since persons with disabilities make up around 20% of

persons living in poverty in less developed countries, the financial barriers to health services are particularly high for this population sub-group (World Health Organization & United Nations Population Fund, 2009).

Thus, there are important legal mandates and significant barriers that persons with disabilities face in accessing healthcare, especially sexual and reproductive healthcare. Including this population sub-group in population policy is a critical step towards to deliver on states' obligations to fulfil these rights. While disability-inclusive policies and programs are not widespread, there are some examples of programs that have successfully integrated persons with disabilities into their population policies. For example, Cambodia used a multi-pronged agenda to create holistic change and empower women with disabilities. The program worked to simultaneously: improve employment and livelihood opportunities; engage persons with disabilities in decision-making for health services, planning, and delivery to ensure that services were accessible; and strengthen information and communication not only through materials, but also through training healthcare staff on interacting with persons with disabilities. This program combined several policy levers to address the barriers discussed above, with significant results. The program has not only increased access to sexual and reproductive health service for persons with disabilities in Cambodia, but also changed the attitudes of health staff to engage better with persons with disabilities (Addlakha et al., 2017).

Given these barriers and the continued marginalization of persons with disabilities, this population sub-group should be considered in both stakeholder engagement and priority actions within population policies. Since access to sexual and reproductive health services is one of the main barriers this population faces within population policies, including disability-inclusiveness is a lens that countries should apply in order to deliver on their human rights commitments and goals of more equitable population policies.

## Other Population Groups

In certain contexts, there might be other specific population sub-groups or minorities that should be considered when developing population policies. These groups may include Indigenous peoples, racial minorities, or people living in certain geographic areas. In particular, when developing population policies, governments need to examine how access to services and culture differ between urban and rural communities, which may determine how the policy will be received or implemented in these communities. In addition, population policies must be coupled with appropriate social interventions to improve the population's health, education, and economic status, which, most importantly, will improve the population's well-being and support the implementation of the population policy. The following example of Canada provides a case study of how countries can examine different population sub-groups and adapt social, economic, and development policies to meet their demographic goals (see Example 31.5).

### Example 31.5: A Case Study of Canada's Opportunities for Growth

In Canada, between 2011 and 2016, only 0.3% of the 1% per annum population growth was attributable to natural increase, and it is estimated that immigration will become the sole source of population growth by 2046 (Kimura, 2016). The decline in natural increase can be attributed to the rapidly aging Canadian population and decrease of the total fertility rate, which has dropped to a mere 1.5 children per woman (Population Reference Bureau, 2021). Without interventions, the Canadian population could move from stable to declining status, which will have serious negative economic consequences (Romaniuk, 2017).

Immigration is generally preferred over fertility boosting campaigns amongst current populations, as it is seen to meet multiple economic and policy goals concomitantly (Trovato & Romaniuk, 2014). However, the other source of population growth could come from fertility

boosting campaigns or Indigenous population growth. For example, Canada's Indigenous peoples make up only 4.9% of the population, yet have had a staggering population growth rate of 42.5% over the past 10 years. Indigenous people, particularly in the Northern Territories, represent an anomaly in Canadian trends – while most regions in Canada are experiencing below-replacement level fertility and are comprised of a rapidly aging population – Indigenous populations across the country are young and growing. They represent a potential departure from future Canadian population growth, as one-third of the Indigenous population is under the age of fourteen (Statistics Canada, 2017). Indigenous youth largely account for the high rates of natural increase in the three Northern Territories and have an average age of 32.1 (Statistics Canada, 2017). For example, in Nunavut, where the population is 84.6% Indigenous (Statistics Canada, 2017), the population growth rate is 12.7%, with a total fertility rate of 2.9 children per woman (Statistics Canada, 2017) – almost twice as high as the national average. While fertility transitions and declines are possible, it appears there is still enough population momentum for continued growth in this population, as population projections suggest (Trovato & Romaniuk, 2014).

While this population could be a target for growth in Canada, it is important to understand why this group has diverged from Canadian demographic trends and the potential barriers for growth. Firstly, there are relatively fewer elderly Indigenous people compared to elderly non-Indigenous Canadians. The survival revolution and many other developmental indicators such as healthcare, education, and income have not improved in Indigenous because of the history of oppression and enduring legacy of colonialism. Today, the high death rates amongst this population continue to be a barrier to growth, as these communities suffer from higher rates of communicable diseases and suicide than the rest of the country. Amidst all these challenges, there is limited access to critical resources and funding for healthcare, education, and employment

opportunities. However, the systemic barriers including the under-representation of Indigenous peoples in government because of representation by population and legacy of the repressive, archaic Indian Act means that policy shifts surrounding Indigenous peoples are not prioritized by the federal government (Trovato & Romaniuk, 2014). Therefore, Indigenous populations in Canada have potential for continued growth, but will not be able to compensate for the demographic shifts in Canada without the multiple policy changes and interventions across healthcare, education, social welfare, and others to support this vulnerable population better and encourage sustainable growth.

This example demonstrates the importance of looking at each population sub-group in a country to estimate their potential contributions to population policy goals. In addition, it highlights the importance of considering what social or economic supports they might require to not only improve their welfare, but also to support a multi-pronged policy lever approach to population policy, since we know that these social interventions can support population goals (May & Rotenberg, 2020). Ultimately, targeting multiple populations through diverse, effective direct and indirect interventions concomitantly can yield optimal results.

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## Conclusion

While there are many different approaches to developing population priority groups, there is no one combination or formula to develop the most effective policies. Instead, countries must engage with their stakeholders to develop comprehensive population policies that match with the values and meet the needs of their populations and contexts. Tailoring population policies to the contexts, culture, and needs of a specific population is critical for effectiveness and acceptability. Achieving rights-based, effective population policies can be done through multiple formats. However, the most effective approach is through

public engagement tools and frameworks. By engaging with communities and those affected by population policies through various priority setting frameworks, countries will be able to identify the relevant groups on which they must focus. Participatory methods to developing policy, while sometimes seen as more expensive, are critical for lasting political buy-in and assessing acceptability of an intervention. Examples from Kenya and Ghana highlight this point most saliently, as their consultative youth approach has helped improve the acceptability and efficacy of their population policies, particularly for their young populations.

In addition, some population sub-groups outlined in this chapter, such as adolescents and youth, persons with disabilities, men, older people, and Indigenous populations are not often considered in population policies. By starting with a framework for prioritization, having extensive consultations, and combining various policy levers mentioned in this chapter, countries can better improve the effectiveness and equity of their population policies. Considering these groups within the classic fertility-mortality-migration mantra of demography can help develop comprehensive population policies. In addition, for many countries who are signatories to international agreements, such as the UN SDGs or the Convention on the Rights of Persons with Disabilities, specifically addressing the needs of these sub-groups in policies is not only politically strategic, but also legally required.

However, countries must match the needs of each population group with the appropriate interventions – both direct and indirect – all while striking a balance between the various population sub-groups. That is, countries must implement a variety of interventions to target each group concomitantly. While many of these interventions may overlap, countries will have to weigh the benefits and consequences for each sub-group in order to decide on the most efficient, acceptable, and effective way forward.

In short, equity is an important part of policy formation and has been increasingly reinforced by donors in recent decades. The considerations to enhance equity in population policies discussed in this chapter demonstrate that demographic

goals of countries around the world will be incomplete without sufficient consideration for various sub-groups and other equity factors. Therefore, putting equity, participatory policy making, and population sub-groups at the heart of demographic policies can address inequities and strengthen the effectiveness of interventions.

## References

- Addlakha, R., Price, J., & Heidari, S. (2017). Disability and sexuality: Claiming sexual and reproductive rights. *Reproductive Health Matters*, 25(50), 4–9. <https://doi.org/10.1080/09688080.2017.1336375>
- Ang, A. P. (2007). Workers' remittances and economic growth in the Philippines. In *DEGIT conference papers c012\_029*. DEGIT, Dynamics, Economic Growth, and International Trade. See [https://ideas.repec.org/p/deg/conpap/c012\\_029.html](https://ideas.repec.org/p/deg/conpap/c012_029.html)
- Baltussen, R., & Niessen, L. (2006). Priority setting of health interventions: The need for multi-criteria decision analysis. *Cost Effectiveness and Resource Allocation*, 4(1), 14. <https://doi.org/10.1186/1478-7547-4-14>
- Clyde, J., Bain, J., Castagnaro, K., Rueda, M., Tatum, C., & Watson, K. (2013). Evolving capacity and decision-making in practice: Adolescents' access to legal abortion services in Mexico City. *Reproductive Health Matters*, 21(41), 167–175.
- Davie, S. (2019). *Parliament: MOE, unis will continue to build local academic core*. See <https://www.straitstimes.com/singapore/education/moe-unis-will-continue-to-build-local-academic-core>. Accessed on 23 Sept 2021.
- Ezeh, A. C., Bongaarts, J., & Mberu, B. (2012). Global population trends and policy options. *The Lancet*, 380(9837), 142–148. [https://doi.org/10.1016/S0140-6736\(12\)60696-5](https://doi.org/10.1016/S0140-6736(12)60696-5)
- Figliuoli, L., Flamini, V., Lambert, F., & Mowatt, R. (2018). *Is Latin America prepared for an aging population?* (IMF views and commentaries). International Monetary Fund. See <https://www.imf.org/en/News/Articles/2018/12/11/blog-is-latin-america-prepared-for-an-aging-population>
- Frohman, C., & Ortoleva, S. (2012). *The sexual and reproductive rights of women and girls with disabilities*. ICPD International Conference on Population and Development Beyond 2014. See <https://ssrn.com/abstract=2444170>
- Graff, M. (2013). *Kenya's adolescent reproductive health and development policy: Implementation progress and barriers*. Population Reference Bureau. See <https://www.prb.org/kenya-policy-assessment-report/>
- Harper, S. (2006). Addressing the implications of global ageing. *Journal of Population Research*, 23, 205–223.
- Heise, M. (2017). *Population, ageing and immigration: Germany's demographic question*. World Economic Forum. See <https://www.weforum.org/agenda/2017/04/population-ageing-and-immigration-germanys-demographic-question/>
- International Monetary Fund. (2015). *Regional Economic Outlook (REO): Sub-Saharan Africa – Navigating headwinds*. IMF. See <https://www.imf.org/external/pubs/ft/reo/2015/afr/eng/>
- Kimura, T. (2016). *Find the latest population facts and figures in our census map. #census2016*. CBC News. See <http://www.cbc.ca/news/2/interactives/canadian-census/>
- Kuper, H., & Heydt, P. (2019). *The missing billion: Access to health services for 1 billion people with disabilities*. London School of Hygiene and Tropical Medicine. See <https://www.lshtm.ac.uk/TheMissingBillion>
- Kwankye, S. O., & Cofie, E. (2015). Ghana's population policy implementation: Past, present and future. *African Population Studies*, 29(2), 1734–1748. <https://doi.org/10.11564/29-2-738>
- Lin, J. (2012). *Youth bulge: A demographic dividend or a demographic bomb in developing countries?* World Bank Group. See <http://blogs.worldbank.org/developmenttalk/youth-bulge-a-demographic-dividend-or-a-demographic-bomb-in-developing-countries>
- Marcus, K., Quimson, G., & Short, S. D. (2014). Source country perceptions, experiences, and recommendations regarding health workforce migration: A case study from the Philippines. *Human Resources for Health*, 12, 62. <https://doi.org/10.1186/1478-4491-12-62>
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- May, J. F., & Rotenberg, S. (2020). A call for better integrated policies to accelerate the fertility decline in Sub-Saharan Africa. *Studies in Family Planning*, 51(2), 193–204. <https://doi.org/10.1111/sifp.12118>
- Mburu, G., Hodgson, I., Teltshchik, A., Ram, M., Haamujompa, C., Bajpai, D., & Mutali, B. (2013). Rights-based services for adolescents living with HIV: Adolescent self-efficacy and implications for health systems in Zambia. *Reproductive Health Matters*, 21(41), 176–185.
- Population Reference Bureau. (2021). *2021 world population data sheet*. Population Reference Bureau. See <https://interactives.prb.org/2020-wpds/>
- Prata, N., Fraser, A., Huchko, M. J., Gipson, J. D., Withers, M., Lewis, S., Ciaraldi, E. J., & Upadhyay, U. D. (2017). Women's empowerment and family planning: A review of the literature. *Journal of Biosocial Science*, 49(6), 713–743. <https://doi.org/10.1017/S0021932016000663>
- Razavi, S. D., Kapiriri, L., Wilson, M., & Abelson, J. (2020). Applying priority-setting frameworks: A review of public and vulnerable populations' participation in health-system priority setting. *Health Policy*,

- 124(2), 133–142. <https://doi.org/10.1016/j.healthpol.2019.12.005>
- Republic of Singapore. (2020). *MOE-AU scholarship*. Government of Singapore, Ministry of Education. See <https://www.moe.gov.sg/moe-au>
- Romaniuk, A. (2017). Stationary population, immigration, social cohesion, and national identity: What are the links and the policy implications? With special attention to Canada, a demographer's point of view. *Canadian Studies in Population*, 44(3–4), 165–178. <https://doi.org/10.25336/P6391D>
- Statistics Canada. (2017). *The daily – Aboriginal peoples in Canada: Key results from the 2016 census*. Government of Canada, Statistics Canada. See <http://www.statcan.gc.ca/daily-quotidien/171025/dq171025a-eng.htm>. Accessed on 23 Sept 2021.
- Sternberg, P., & Hubley, J. (2004). Evaluating men's involvement as a strategy in sexual and reproductive health promotion. *Health Promotion International*, 19(3), 389–396. <https://doi.org/10.1093/heapro/dah312>
- Trovato, F., & Romaniuk, A. (Eds.). (2014). *Aboriginal populations: Social, demographic, and epidemiological perspectives*. University of Alberta Press.
- United Nations. (2001). *Replacement migration: Is it a solution to declining and ageing populations?* United Nations Secretariat, Department of Economic and Social Affairs, Population Division.
- United Nations. (2014). *International conference on population and development programme of action*. United Nations Population Fund.
- World Health Organization. (2002). *Programming for male involvement in reproductive health*. World Health Organization, Department of Reproductive Health and Research. See [https://www.who.int/reproductivehealth/publications/general/WHO\\_RHR\\_02\\_3/en/](https://www.who.int/reproductivehealth/publications/general/WHO_RHR_02_3/en/). Accessed on 23 Sept 2021.
- World Health Organization. (2014). *Health for the world's adolescents: A second chance in the second decade*. World Health Organization. See <https://apps.who.int/adolescent/second-decade/section3/page1/death-&-disease-among-adolescents.html>. Accessed on 23 Sept 2021.
- World Health Organization & United Nations Population Fund. (2009). *Promoting sexual and reproductive health for persons with disabilities: WHO/UNFPA guidance note*. World Health Organization. See [https://apps.who.int/iris/bitstream/handle/10665/44207/9789241598682\\_eng.pdf;jsessionid=D34BDB469B55B9AFE7489DD1715D9103?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/44207/9789241598682_eng.pdf;jsessionid=D34BDB469B55B9AFE7489DD1715D9103?sequence=1). Accessed on 23 Sept 2021.





# Demographic Dynamics, Poverty, and Inequality

# 32

Jorge A. Paz

## Introduction

The objective of this chapter is to review and systematize the knowledge accumulated so far about the link between demographic dynamics, poverty, and inequality, and to see to what extent that knowledge is being, and/or can be used, in the design of policies, strategies, and programs to combat poverty. The aim is to show the importance of the demographic dimension in such policies and programs, with the conviction that understanding how population dynamics and structure impact poverty can contribute to maximizing the impact of interventions and minimizing their costs.

Much has been written about the relationship between demographic dynamics and poverty, but a little less about the link between it and economic inequality. For decades, it has been considered that ostensible demographic growth tended to increase the poverty of the nations that experienced it. Although there is evidence that fertility reduction contributed to the fall of poverty in many countries of the world (Wietzke, 2020), it has also been observed that, in several nations, mainly in Africa, Asia, and Latin

America that went through the demographic transition, poverty levels remain persistently high. Indeed, despite the slowdown in population growth rates, the data reveals that there are still marked mortality and fertility differentials, both *between* and *within* countries.

The reduction in the growth rate of population, although widespread, was not even. A static look then allows countries to be located at different stages of their demographic transition. Although the lag in the transition that some countries face entails socio-demographic risks for the groups that experience it<sup>1</sup> and that are typically poor, the transition from high to low levels of mortality and fertility does not imply, at all, that the problems related to the population disappear. On the contrary, new socio-demographic risks emerge, such as aging in contexts of high poverty and economic inequality.

This chapter is organized as follows: the first section briefly reviews the classic background of the relationship between demographic dynamics, poverty, and inequality; the following section analyzes the links between demographic transition and poverty and then goes on to examine topics such as adolescent fertility, aging, and the internal and international mobility of the population; finally, the last section is devoted to the analysis of the ways in which societies have

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<sup>1</sup> Due, for example, to the high levels of infant and maternal mortality and fertility, typical of this stage of the transition.

faced the problems related to poverty, to conclude with the examination of the inclusion of the demographic dimension in the current policies to fight poverty.

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## Demographic Transition, Poverty, and Inequality

The evidence available for countries with still high fertility, mainly from the Demographic and Health Surveys (DHSs), indicates that the demographic dynamics of the poor population differs from that of the non-poor population. In effect, people who belong to groups identified as poor by their educational level record fertility rates ranging from 5.7 to 7.1 children per woman, vs. a range that goes from two to 2.5 children per woman in the most educated groups. Although the average educational level of the population has been increasing and the number of people without education and residents in rural areas is decreasing, these data warn of the existing disparities. These high fertility levels allow us to affirm that the growth rate of the poor population is, in all cases, higher than the rate of change of the non-poor population due to its higher rate of natural growth.

This demographic dynamic of poverty has been identified as one of the multiple barriers that the poor face to escape situations of deprivation. The demographic overload, expressed in high levels of fertility and mortality, clearly affects the mechanisms that promote the reproduction of poverty. Birdsall and Sinding (2001) distinguish the mechanisms through which this situation is generated: (a) more numerous offspring reduce the households saving and consumption capacity; (b) the well-being of all its members decreases; and (c) the capacity of asset accumulation falls. To try to break this causal chain that operates as a poverty trap, some public policy interventions aimed at poverty reduction focus on increasing the saving capacity of poor households (Steinert et al., 2018).

The link between the reproductive behavior of the poorer sectors of the population and the inter-generational transmission of poverty has been extensively studied since the second half of the

1990s. Higher fertility places poor households at a disadvantage in terms of the possibility of educating children. Lachaud et al. (2017) show that mothers with a reduced family size invest more in the education of their children, allowing them to maintain an educational advantage from generation to generation with respect to the poorest and most uneducated families.

These considerations have clear policy implications. Engaged in a situation of poverty, numerous households face unfavorable demographic conditions to overcome poverty lines, whatever the way of defining it – income, education, health. So, welfare promotion has a lot to do with reproductive health promotion and this includes not only public and non-governmental institutions, but also the community.

In order to evaluate the mechanisms that promote these particular demographic dynamics of the poorer groups, it is necessary to review the proximate determinants of fertility, mortality and morbidity, and the spatial mobility of the population, which generate behavioral differentials. These proximate determinants are ultimately determined by the deep, structural factor that is defined by the poverty of the regions, households, and people.

## Fertility

Although a decline in fertility has been verified in all social groups, the most disadvantaged ones from the point of view of poverty by income, by educational levels, and by area of residence, still exhibit fertility levels markedly higher than the national averages. One of the elements that attracts attention and that contributes to explaining fertility differentials by social groups has to do with unwanted fertility. It is clearly seen that the ideal number of children declared by women shows greater homogeneity between social strata than the observed fertility. Gillespie et al. (2007), in a study that includes 41 less developed countries, finds that unwanted births in the poorest quintile are more than double the number found in the richest quintile. This result suggests a certain vulnerability of reproductive rights since it can be interpreted as meaning that

society is not giving the poorest groups the means to match observed fertility with desired fertility, which tends to perpetuate inequality between one and the other.

The available evidence also shows that this lack of correspondence between what is observed and what is desired is sustained by low rates of access to contraceptive methods. Despite this finding, it should not be overlooked that among the profound determinants of the use of fertility control methods is the unequal importance assumed by the costs and benefits of offspring among different social strata. Aspects such as the lack of information, travel costs, the low salary that poor women can obtain in the labor market, and the equally low probability of insertion into the labor force in economically favorable conditions are some of the aspects that converge in the explanation of the phenomenon and that generate a synergy that reinforces the situation of poverty to which they are subjected.

But knowing and using these techniques, although necessary, is not a sufficient condition to achieve equalization between the desired and the observed fertility. The available data show clear and marked differences in the percentage of those women who declare not to use contraceptive methods despite knowing them. One of the factors that explains the lack of use is the disagreement between the members of a couple. DHS surveys show that a considerable proportion of couples show discrepancies between their members about the use of fertility regulation methods. This situation is particularly frequent among poor groups, where macho attitudes still predominate and where women are valued socially based on their role as mother and wife. Hence the importance that gender and human rights considerations acquire in programs that seek to act in this regard (JahaniShoorab et al., 2015).

The rule is that groups subject to the harshest conditions of poverty have the highest percentages of unwanted fertility and the lowest rates of access to contraceptive methods (Bongaarts, 2006). These same groups have the highest total fertility rates and the highest proportions of teenagers at a reproductive age.

Their coexistence is one of the most eloquent aspects of the circle of the intergenerational reproduction of poverty.

Therefore, improving the impact of sexual and reproductive health policies directed to assist poor groups would require aiming at weakening all those factors that prevent convergence between desired and observed fertility. For this, it would be convenient to eliminate the obstacles that restrict access to information, education, and the media to materialize reproductive aspirations, especially among women, but it is also necessary to support women's status in society to improve their ability to attain their own reproductive goals, not just those of their spouse and family. If this is combined with policies focused on expanding the social and economic opportunities of the most disadvantaged groups in society, they can contribute to a sustained improvement in the welfare of families.

In this sense, policies aimed at greater gender equality and the effective exercise of human rights could have impacts not only on demographic dynamics, but also on the intergenerational reproduction of poverty. But in addition to gender disparities, it would be convenient to pay attention to intra-gender gaps, so as not to neglect the fact that women have differences between them in other demographic dimensions: e.g., country-city, ethnic origin, and geographic regions. In this context, the recommendations made in Beijing on the occasion of the 1995 Conference take on special relevance (see Chap. 15: *Population Institutions and International Population Conferences* of this *Handbook* [Bernstein et al., [this volume](#)]).

It should be considered that high or higher fertility seriously compromises the probability of households escaping poverty, mainly due to the time and resource demands of raising children, general care tasks, and all things related to domestic work. This does not imply at all that the reduction of fertility is a sufficient condition to eradicate poverty, since the causes of material and human deficiencies have their roots in social processes whose breadth and depth exceed the plane of reproductive patterns.

These are just some of the obstacles that families must face in acquiring and consolidating the knowledge necessary for improving their productivity and status in society. As mentioned before, the high fertility of the poor restricts investments in human capital and consequently causes descendants to be trapped in poverty, just like their parents. What is known about specific reproductive behavior among the poorest sections of the population is also very important. Early marriage rates, the lower prevalence of modern contraceptive use, the higher fertility rate among adolescents and the pubescent, the higher total fertility, and the higher maternal and infant mortality are common in these groups, which ultimately turns into lower hope for life at birth. Consequently, these groups have larger families and high rates of economic dependency.

Despite not being a sufficient condition, fertility reduction is one of the ways to help households forge solid forms of upward social mobility, as long as reproductive policies are accompanied by other policies related to the labor market and investment in human and social capital. According to a study carried out in Mexico, economic variables exert the greatest influence on the probability of being poor (Cortés, 1997), but given the strong interaction between demographic and economic variables, it is very difficult to separate the effects and assign a single factor its total relative weight. Recent simulation-based research for Nicaragua reaches similar conclusions (Andersen, 2003). In sum, any intervention that seeks to reduce the incidence of poverty must consider these interlocking factors among the dimensions on which it must act, knowing that they are not the only ones.

## Mortality

As already noted for fertility, although the decline in mortality in the less developed regions of the world was persistent and widespread during the last 60 years, the differences between countries and between groups classified according to their poverty condition continue to show strong disparities. One way to evaluate socioeconomic mortality inequalities is to focus on indicators

sensitive to people's social conditions. Among them, those that meet this condition are the infant mortality rate, the maternal mortality rate and, to a lesser extent, the adult mortality rate.

## Infant Mortality

Analysis of the infant mortality gaps shows that the rates for the poor and excluded groups are several times higher than the national averages, even in the countries that have made the most progress in the demographic transition. Minujin and Delamónica (2003), based on a sample of 24 developing countries, show that the mortality rate of children under 5 years old in the bottom quintile of the wealth distribution is, on average, 2.2 times higher than in the richest quintile. This means that, given the higher fertility of the poorest households, a family belonging to the lowest quintile of the wealth distribution is three times more likely to have a child die before the age of five than a family in the highest quintile.

Furthermore, these authors highlight that the mortality differentials among children under 5 years old remained constant over time in some countries, but worsened in most of them. They also note that the relationship between changes in the mortality gap and changes in income inequality does not appear to be too close, suggesting that public policy could play an important role in directly reducing the disparity in childhood mortality.

For their part, Paz et al. (2004), using the mother's education as an indicator of the socioeconomic level of the families, found that infant mortality in the low socioeconomic strata (in this case, the least educated) exceeds, on average, more than 100% of the middle of the upper strata. In this study, those who exceeded the threshold of 12 years of schooling are considered "high stratum", therefore, it is likely that if the strata with higher education were incorporated into the analysis, even more marked<sup>2</sup> differences could appear. Differences within countries between

<sup>2</sup> However, according to studies that discriminate for higher educational levels, much higher differentials are not seen for higher educational levels. It seems that the average educational level is the one that is very close to the minimum attainable by the countries.

extreme educational groups are marked. Bolivia, in 1998, reported a difference somewhat greater than 170% and Peru, in 2000, 168%.

Although the previous data deal with observed social disparities which are truly high, these authors estimate, with the same figures, how far infant mortality is from the most advantaged groups in the social structure, with respect to ten per thousand, which is the level reached by countries in the region already advanced in their demographic transitions. Thus, the average level of infant mortality from mothers with 12 or more years of formal education for an important group of Latin American countries is 235% above ten per thousand. There are particularly notorious cases, such as Haiti, which is 459% higher than ten per thousand, and Bolivia and Guatemala at approximately 310%.

The mechanism by which low maternal education turns into higher infant mortality involves a constellation of variables, among which are knowledge about the care of the healthy and sick child, family decisions about the allocation of household resources (food distribution among its members, for example), the decision to seek medical consultations, and fertility differentials, already analyzed in the previous sub-section.

A periodization of the moment in which the death of the child occurs can help to analyze the causes that predominate in the different stages of the demographic transition and the appropriate policies to reduce infant mortality. When infant mortality is high, deaths of children aged one to 11 months and deaths caused by malnutrition and infectious diseases predominate. When infant mortality falls, deaths from perinatal diseases and congenital anomalies become important. The over-mortality in the incipient stages of the demographic transition is mainly explained by avoidable causes originated by infectious processes.

Another important element in judging the social differentials of death in childhood is the mothers' place of residence. The geographical location of risk groups is also a decisive factor in examining disparities in risk of death in the child's first years of life. Thus, the reduction in the level of infant mortality means in some cases a

decrease in the disparity between urban and rural areas (Bhatia et al., 2018). However, the persistent differentials are striking, even after the sharp reduction in the gap. Despite this reduction, infant mortality registers disparities not only between urban and rural areas, but between administrative units in the same country (Bhatia et al., 2019).

This is also verified within some countries for which information is available. In Santiago de Chile, the infant mortality rate in the commune where the highest income groups reside (Vitacura) stood at 5.8 per thousand in 1995, while in the communes with the highest levels of poverty (La Pintana) it registered rates of 13.5 per thousand (CEPAL, 1998). In the early 1990s in Costa Rica, infant mortality rates in the cantons with the highest standard of living registered rates close to 13.5 per thousand, vs. 18.7 per thousand observed in the cantons with the lowest level of life (Bhem Rosas, 1992). Around the same date in the Municipality of São Paulo, areas with less than 30% of the poor population had an infant mortality rate of 20 per thousand, while those with more than 50% of the poor population registered rates higher than 60 per thousand (Akerman et al., 1996).<sup>3</sup> In Quito, Ecuador, when the general infant mortality rate reached 58 per thousand, the contrasts between the medium and low social conglomerates were truly marked: 26.1 vs. 76.9 per thousand, respectively (Breilh & Granda, 1983).

What has been analyzed in the previous paragraphs leads, on the one hand, to understand the multidimensional nature of poverty and, on the other hand, warns policymakers about the need to act simultaneously on families, neighborhoods, and the health sector. In terms of anti-poverty policies, income maintenance programs, general and health education, the provision of basic services (drinking water), and the territorial targeting of resources could have a high impact on this important demographic dimension.

<sup>3</sup> Although these figures are outdated, they clearly show the situation of countries in post-transitional stages such as Chile and Costa Rica.

## Maternal Mortality

The literature recognizes that maternal mortality is one of the most direct expressions of the extreme damage suffered by women during their fertile stage and is a consequence of problems related to pregnancy, childbirth, and the puerperium, treatable through simple and low-cost measures. Empirical evidence shows that maternal mortality is more closely related to the availability of health services than to infant mortality. This would allow us to understand, for example, why during the last decades maternal mortality in less developed regions has been slower to change than infant mortality.

Despite the difficulties in determining the level of maternal mortality<sup>4</sup> with some precision, the evidence shows that the main causes of maternal death are eclampsia, hemorrhage of pregnancy and childbirth, abortion, postpartum sepsis, hypertension, and obstructed labor. According to the epidemiological analysis, these deaths are preventable by facilitating the population's access to basic health services and avoiding risks inherent in reproductive behavior (early and/or late pregnancies, reduced intervals between births, unwanted pregnancies, among others). These elements have already been considered in the *Programme of Action* approved by the International Conference on Population and Development in Cairo (see Chap. 15: *Population Institutions and International Population Conferences* of this *Handbook* [Bernstein et al., [this volume](#)]). There, the need to promote women's health and safe motherhood is highlighted, aiming at reducing maternal morbidity and mortality and diminishing inter- and intra-country disparities (United Nations, 1995).

Ninety-nine percent of maternal mortality occurs in less developed countries. In a study that included 82 of these nations, the relationship between socioeconomic indicators, health indicators, disease burden indicators, and the maternal mortality rate (MMR) were analyzed in detail (Girum & Wasie, 2017). This study revealed the significant correlation of maternal

mortality with the prevalence of early marriage, which could be due to the fact that, at an early age, women are not capable of carrying a pregnancy to term, which represents an increased risk of obstructed childbirth. Similarly, the authors found that the level of literacy was correlated with the maternal mortality rate, which would obey a multiple effect of greater knowledge about the importance of the use of services. This finding highlights the relevance of the provision of information and health promotion on reproductive health services to reduce maternal mortality.

The number of available doctors and nurses is also associated with maternal mortality. This could suggest that the availability of health professionals increases the availability of the maternal care service and improves the quality of the existing service and further reduces maternal mortality. Similarly, the use of prenatal care and skilled birth services has been significantly and negatively associated with MMR. This finding is also reported from previous studies.

As noted earlier, fertility also plays an important role in this phenomenon. Higher fertility is associated with an increased risk of pregnancy complications for a woman. The unmet need for contraception and the contraceptive prevalence rate (CPR) have also been shown to influence the maternal mortality rate.

Maternal mortality data are not too reliable. However, DHSs and similar surveys provide some figures on the maternal mortality differentials between countries in the world. The variability between countries is very high and ranges from seven to 1360 deaths per 100,000 live births with an average of 195.4 (Girum & Wasie, 2017). During the last 30 years, the world community has treated maternal mortality from different perspectives, trying to estimate its prevalence, analyzing its determinants, and proposing policies for its eradication. However, despite the global consensus on this issue, the maternal mortality rate fell less than expected: from 385 in 1990 to 216 deaths per 100,000 live births in 2015 (Alkema et al., 2016; Cabero-Roura & Rushwan, 2014). As a result of the current level, it is estimated that, in the next 15 years, 3.9 million women will die from a cause of maternal

<sup>4</sup> This difficulty is exacerbated because death certificates often omit the mention of pregnancy (Gómez, 1997).

death (Alkema et al., 2016). This value would prevent reaching the Sustainable Development Goal (SDG) of 70 or fewer maternal deaths per 100,000 live births (Ruiz Cantero, 2019).

### Adult Mortality

The studies on gaps in adult mortality do not differ in their conclusions from those discussed in the previous sub-sections for infant and maternal mortality. Excessive mortality from liver cirrhosis has been detected in some less developed regions, which can lead to strong social differentials in mortality. It is probable that risk factors such as alcoholism, smoking, working conditions, and violence have a greater incidence in the poorest social sectors, so that illness and death could also show these contrasts for the adult.

But perhaps the aspect that acquires greater relevance at present and that goes back to a couple of decades ago, is the Human immunodeficiency virus infection and Acquired immune deficiency syndrome (HIV/AIDS). HIV has generated an AIDS epidemic that spread rapidly and has most affected the poorest groups. This statement should be taken with caution given the limited availability of existing information to provide empirical support. Similarly, the COVID-19 pandemic could also affect significantly the poor.

The important study by Chetty et al. (2016) has reached, in this sense, four important conclusions: (a) a higher income was associated with a greater longevity of the entire income distribution of a very large sample of people in the U.S. – the gap in life expectancy between 1% of the richest and the 1% of the poorest was 14.6 years for men and 10.1 years for women; (b) inequality in life expectancy increased over time; (c) life expectancy of low-income people varies substantially between local areas; and (d) geographic differences in the life expectancy of people in the lowest income quartile were significantly correlated with health behaviors, such as smoking, but were not significantly correlated with access to medical care, physical environmental factors, inequality of income, or labor market conditions. In sum, the factors that determine inequalities in adult mortality are

similar to those that explain the gaps in infant and maternal mortality.

### Summing Up

While studies based on aggregate data show clear progress in reducing fertility and over-mortality in less developed nations, gaps in unwanted fertility, infant mortality by poverty group, and maternal and adult mortality, suggest that there is still much to do in terms of population and its relation to poverty. Furthermore, it is these differentials that are most closely associated with poverty levels and their reproduction. Consequently, their treatment requires analytical detail and policy interventions to help improve the standard of living of a vast sector of the world population.

All these problems operate in the sense that they concern the object of the present work. Traditional actions such as family planning programs, maternal and child prevention programs, among others, are not enough to forcefully attack the hardest core of poverty, which is maintained by a constellation of demographic factors, including all aspects of mortality and gender differentials in education and social status. For their part, anti-poverty programs have, in this sense, space to improve the effectiveness of their interventions.

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## Additional Issues

### Adolescent Fertility<sup>5</sup>

After experiencing the demographic transition, the peak of fertility in many less developed countries has shifted due to the decline in the contribution to the total number of children made by older women within the reproductive period. On the contrary, in those same countries, women's fertility under the age of 20 has been refractory to the decline. Furthermore, within this group, the youngest were the most resistant to

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<sup>5</sup> See also Chap. 31: *Priority Groups in Population Policies* of this *Handbook* (Rotenberg, [this volume](#)).

change, noting that, in some countries, the fertility level of this group increased in the last decade.

The concern for this fact is two-fold. In the first place, the researchers agree in affirming that adolescent fertility and poverty are phenomena that are strongly related. Second, early motherhood brings undesirable consequences for women themselves, and for their children, parents, and relatives. The pregnancy of the youngest undermines the continuity of their educational process and reduces the probability of an adequate insertion in the labor market, becoming one of the key elements of the intergenerational transmission of poverty.

The literature is emphatic about the disadvantages that teenage pregnancy and early motherhood entail for women throughout their life cycle. Thus, Chaaban and Cunningham (2011) highlight the negative macro-economic effects produced by the opportunity cost that societies in African and Latin American countries incur due to teenage pregnancy. Chevalier and Viitanen (2003) find that payment differentials in the adult population between women who were mothers in adolescence and those who were not range between 5% and 22%. For Nicaragua, Altamirano et al. (2016) show that women who were mothers during adolescence in Nicaragua receive an income 23% lower than non-adolescent mothers and highlights that this lower income not only affects women themselves but also their dependents.

Regardless this type of evidence, there are studies that show that early motherhood, especially that which occurs before the age of 17, is the most worrisome because of its harmful effects on the health of young women, the upbringing conditions of children, and school dropout (Guzmán et al., 2000). The latter adds a topic to the analysis of adolescent fertility, especially if it is observed that it is precisely the fertility of the youngest among the young that has increased the most in less developed countries and that the speed of the increase decreases as women age increases (Paz et al., 2004).

There is a very strong component of vertical inequality (by quintiles of family income) and horizontal (by gender) in adolescent fertility.

The National Survey of Adolescents and Youth (ENAJ) carried out in Uruguay in 2013 reveals that young women and men (13–29 years old) who had at least one child were mothers/fathers at age 20 on average. For their part, these same girls and young people give an average desired age for maternity/paternity of 26 years. That is, there is a six-year difference between the effective age and the desired age of motherhood. If the same calculation is made taking only those who were mothers/fathers, the difference gives an average of 3.6 years. The differential between quintile I of family income (the poorest 20%) is 4.5 years for women and 2.9 years for men, while in quintile V (the richest 20%) it is 0.8 years for women and 2.8 years for men. This suggests that a large part of the girls residing in low-income households are mothers without wishing to, but this does not happen as often among men (Väisänen, 2016). Despite the decline in the overall teenage pregnancy rate, poorer teens continue to be associated with an increased risk of conceiving and giving birth.

If other indicators are consulted, these conclusions are reinforced. Take, for example, the data provided by the demography and health surveys on the percentage of women aged 15–19 years who have been mothers or who are pregnant with their first child. This information reveals that 17-year-old girls are the ones that registered fertility increases during the 1990s in all the countries that have been surveyed. It is also observed that there are few less developed countries in which the percentage of women who have been mothers or are pregnant with their first child has decreased. This makes policies aimed at moderating the population growth of the poor population lose strength, as adolescent fertility is highly resistant to decline.

The differences between countries that arise from the previous evidence should not neglect the disparities that are observed within the countries and that warn about the relationship between adolescent fertility and poverty. For example, the data provided by the 2000 National Census of Population and Housing of Mexico show that among women between 15 and 19 years old without formal education, 27%



reported as mothers, compared to only 4% of those with a high school education.

An equally interesting indicator of the situation of poverty within countries is the place of residence of adolescent women. In this sense, high levels of adolescent fertility are observed in rural areas of less developed countries (Wright et al., 2016). In all countries for which comparable information is available, the fertility of rural adolescents far exceeds that of their urban counterparts (Sentell et al., 2019). While this is not a surprising finding due to the well-known fact of rural over-fertility for all women, it is surprising that fertility gaps between urban and rural areas are larger among younger women. In Brazil, for example, the fertility of rural girls is 50% higher than the fertility of girls in urban areas; this difference for adult women (30 years old and over) reaches only 4% (Narita & Díaz, 2016).

Even more marked are the differences between groups defined by socioeconomic quintiles. All the countries that participate in the Demographic and Health Surveys show huge gaps in the proportion of women with reproductive experience according to the quintiles mentioned. In Bolivia, for example, the proportion of girls in the poorest quintile with reproductive experience is eight times greater than that of the highest quintile. As analyzed with the disparities between urban and rural areas, socioeconomic differences narrow sharply after age 30.

These findings point to one of the clearest expressions of the intergenerational transmission of poverty. Although the causal mechanism is somewhat controversial, women excluded from formal education begin their reproductive stage at very young ages, therefore their situation of exclusion tends to perpetuate itself and be transmitted to their offspring. Additionally, as poor adolescent parents and their families lack the resources to cope with the upbringing of children, they enter the workforce, redistribute responsibilities through their support networks usually consisting of family members, or shirk their obligations, directly affecting the future of their children (Bird, 2013).

From this brief review emerges the policy aspects to consider. First, the success of sex education, reproductive health, and family planning programs among adults does not necessarily replicate among adolescents. This group is usually exposed to certain stimuli for the initiation of sexual activity and face restrictions or difficulties for the responsible use of the contraceptive methods promoted by the mentioned programs. During adolescence and youth, the reproductive system is activated so it is necessary to create conditions to prevent the risks involved in the development of sexuality. Young people thus face situations that require prior preparation (Monroy de Velasco & Martínez Manautou, 1986).

Second, young people also often lack knowledge and experience about the consequences that certain behaviors can have. This makes them prone to risky and rushed behavior. Therefore, interventions are required that, without encouraging early motherhood support, include pregnant women and adolescent mothers, especially regarding school attendance. However, the knowledge of contraceptive methods is not a factor that explains the differences in fertility between adolescent women and adult women. The main differences are between poor and poorly educated adolescents and non-poor adolescents with a high level of education. This constitutes a powerful reason to consider fertility in anti-poverty policies.

Third, the vulnerability of adolescent mothers is also transmitted to their children, creating a conducive environment to the intergenerational reproduction of poverty. Vulnerability comes, fundamentally, from the strong dependence of young mothers on the socioeconomic situation of the members of the household in which they live.

It should not be neglected in the analysis that reproductive behavior includes other concatenated elements that lead to the birth of a child. Among them, the events related to sexuality itself and the formation of a stable couple stand out. The literature on this topic raises the existence of an articulating triad of reproductive

behavior, made up of sexual, nuptial, and reproductive initiation.

Finally, it should be emphasized that adolescence, freed from the heavy burden of early pregnancy and motherhood, would facilitate the process of asset accumulation and income generation for young women throughout their life cycle. In other words, although it would not guarantee a future without poverty, it would facilitate it. On the contrary, pregnancy and motherhood at an early age impose severe limits on these processes and involve other members of the household, generally relatives of the girl. This causes an increase in the household's probability of experiencing an episode of poverty and produces vulnerability not only for the young mother but also for her child or children.

## Aging

As a consequence of the demographic transition experienced in recent decades, the population of some of the world's poorest and most unequal countries is aging steadily at a much higher rate than in the more developed countries. Although population aging is a process that is operating on a global scale, some characteristics that distinguish it from more developed nations can be detected in less developed countries. First, it is occurring at a very rapid rate; second, it happens in a context of high poverty and inequality. These characteristics make the phenomenon especially relevant when it is a question of evaluating the probable impact on inequality and poverty among society in general and of the elderly in particular.

The speed with which this phenomenon is taking place can be seen by comparing, for example, the situation in Brazil with the historical evolution of three countries with advanced transitions: the Netherlands, Finland, and the U.S. Indeed, in just 40 years, Brazil will add a proportionally greater number of older people than countries such as the Netherlands or Finland added over the course of a century. This implies that the least developed countries face the need to take measures to mitigate the negative consequences of aging, and must do so much

more quickly than more developed countries did. The task is complicated if it is taken into account that, as mentioned before, accelerated aging unfolds in the region in a context with very high levels of inequality and poverty.

The situation that arises is truly complicated due, in particular, to the peculiarities that older people present and that make them particularly vulnerable. These peculiarities are appreciated both in consumption and in income. The needs of older people are different from that of the young population, which means that the poverty lines calculated by the traditional method of food and non-food baskets do not adequately reflect the needs of this demographic group. If these dimensions could be incorporated into the calculation of the poverty lines, they would probably be higher than those corresponding to the young population.

On the other hand, the income of the elderly comes from the labor market, pension systems, and family transfers. The level of social security coverage reinforces the need to reside in multi-generational homes and promotes greater participation of older people in the workforce. Much of this segment of the population is impelled to work, and work thus appears as a necessity and not as a voluntary option that, eventually, could improve the self-esteem of the population in advanced ages. In support of this statement, the data show a strong inverse relationship between social security coverage and the proportion of older people employed. The potential income of older people from the labor market is not only comparatively low, but absolutely unstable and with a high probability of interruption due to physical capacity problems.

But beyond poverty due to income, the demographic transition has expanded the number of years lived by the population and with it has increased the proportion of people that face old age. As human development reports put it, overcoming poverty by capacity implies, on the longevity plane, "living a long and healthy life". The question then arises as to how the problem of diminished capacity operates among older people. If it is done differentially between the poor and non-poor, the increase in disability-free life

expectancy could also be differential among the population according to poverty strata. Evidence from communicable disease surveys shows that the risks of obesity, high blood pressure, and diabetes, more prevalent among older people, are higher in the lower-income population. This means that the extension of longevity also implies a greater inequality in the health field. In a somewhat different way, it is not enough that life expectancy at birth has increased for all, including the poor. It should be analyzed to what extent this increase has effectively become an increase in well-being, which could be measured by the indicator of disability-free life expectancy.

Throughout this process, there are also horizontal inequalities. Thus, for example, it has recently been argued that the demographic aging of human society is not gender neutral. Some authors affirm that the active aging policies that have been implemented in various countries as a response to the challenge of demographic aging have not done so considering the gender dimension (Paz et al., 2018). This is a key factor because women live longer than men, but at an advanced age they face the accumulation of discriminatory factors that have operated throughout their life cycle.

### **Migrations and Spatial Location of the Population**

In almost all less developed countries, a reduction in the growth rate of the urban population and a persistently positive, albeit low, growth of the rural population has been observed in recent decades. The reasons that have contributed to the slowdown in urban population growth were the decrease in natural growth and a notable decline in population movements from the countryside to the cities, very characteristic of the period that preceded World War II.

A large percentage of the urban population of these countries lives in highly populated cities and the urban system of each country has a relatively high primacy index for its largest city. But it was precisely these densely populated cities that underwent a reduction in the strong growth rate

that characterized them from the post-World War II period until the 1970s. The collapse of substitute industrialization, the fall in public employment, the low growth rate of investment during the “lost decade”, and the abandonment of urban planning that was replaced by market management mechanisms contributed to this process of urban development.

The events marked in the preceding paragraphs shifted the attention of sociodemographic research to other types of movements that are more diversified, including inter-urban and intra-metropolitan migration, the new expressions of rural migration and international migration. Among all of them, there is agreement in the literature that long-distance migration is the predominant form.

Migratory phenomena are closely related to the material well-being of the population. A non-negligible fraction of its multiple causes is due to economic motivations and generates consequences with a strong impact on people’s living standards. One could then speak of a territorial dimension of poverty and proceed to its analysis from the largest aggregates (city-country, for example) to lower levels of analysis (households in specific urban centers).

Next, we address three points considered basic to the problems faced by less developed countries regarding the link between internal migration and poverty. The first of these is related to spatial correlations between income per capita and differential flows of migration. Second is how urban settlement patterns give rise to different experiences for different sectors of the population. Finally, we conclude with a discussion of poverty and the rural sector.

### **Results of Population Movements**

A first approach to the relationship between internal migration and poverty can be achieved by observing how the economic situation of people, regions, and provinces changes, as measured by monetary income, in response to changes in the population’s place of residence. Although the available data imposes severe limits on the

exploration of this type of problem, some important conclusions can be drawn by combining information on population transfers (summarized in traditional migration matrices) and money income declared by individuals.

Using various data sources, Jia et al. (2017) examine the contributions of rural labor migration to economic growth and poverty reduction in China. The results show that there are still a significant number of people living in poverty in rural areas, while the effectiveness of migration in reducing poverty has decreased in urban areas. The authors present in this sense an urgent need for new approaches to poverty reduction. China's experience could also be valuable in formulating development strategies in other less developed countries.

Miranti (2019) finds that urbanization in Indonesia contributed positively to poverty reduction. To reach this conclusion, she evaluates the results of rural-urban migration, which is one of the determinants of urbanization. The author claims that this type of migration significantly reduces the probability of being in the poorest 20% of the income distribution. The importance of provision and access to basic facilities or infrastructure as a strategy to reduce poverty is highlighted in the study.

One aspect that appears repeatedly in the studies is that the poorest provinces lose in net terms with migration, while the richest provinces win in net terms. This also implies that, in the provinces with a lower economic level, the average income of emigrants exceeds the provincial average and that the average income of immigrants is below the average. The opposite occurs in provinces where the economic level (measured by average income) is higher (Milanovic, 2016).

This is a way, although somewhat indirect, to perceive the profile of the migratory flow. It suggests, for example, that individuals with high potential incomes leave their place of origin and go to jurisdictions with higher per capita incomes. In contrast, the poorest reach those jurisdictions with below average incomes, causing further falls in per capita income. The synergies of migrations thus operate in a negative sense, enriching the regions with the best starting economic position and impoverishing the poorest.

## Urban Poverty

The location of the poor is not neutral with respect to the reproduction of poverty. The poor are more likely to settle in areas with greater exposure to environmental risk and tend to be geographically concentrated, generating residential segregation (Bailey, 2020). Among the most important consequences of this phenomenon is the problem of contacts between social sectors. The interaction between socioeconomic groups becomes less intense; the ties between the poor themselves are strengthened, weakening certain behaviors that are functional to social performance (Kaztman, 2003). These are outstanding features of urban poverty.

Although it was previously suggested, it should be noted that concentration in certain neighborhoods or sectors of cities is not a distinctive characteristic of poor groups – the wealthy and ethnic groups also cluster in certain neighborhoods. Nonetheless, one of the most outstanding aspects of residential segregation is the weakening of the bonds of social interaction between the upper and lower social sectors. In the cities of less developed countries, there is a certain tendency to isolate the high-income sectors, probably caused by defensive behavior against prevailing insecurity. One consequence of this phenomenon is that the highest-income sectors no longer need to engage with the rest of the city to carry out their daily activities or interact with other social sectors, which tends to further weaken social interaction with the poor.

Residential segregation was fueled by intra-metropolitan migrations, displacements that, as mentioned before, were characteristic in the region for the past two decades (Bailey, 2020). Also contributing to this was the search for affinity by the different social strata, combined with the costs of buying and renting homes. All this promoted territorial concentration.

As a consequence of the above, the poor sectors saw their already disadvantageous situation deteriorate due to the insufficiencies of the social services offered by poor municipalities and the low private investment made in them. The isolation caused by the physical and social distance between the poor and the rest of the

metropolitan population favors the reproduction of poverty, erodes social integration, and fosters anomie behavior that creates negative externalities.

Added to the above is the fragmentation of public spaces that in the past had social mixing as a central feature. The educational system is, in this case, an emblematic example. The segmentation of the educational system can be appreciated by the composition of the school enrollment of poor and rich children in public and private schools. Territorial segregation is replicated in this sense. The upper social sectors tend to be over-represented in private and exclusive schools, while the poorer sectors of the population tend to be concentrated in public schools. The weakening of social interaction operates in this sense in the lower part of the population pyramid, creating an environment conducive to the intergenerational reproduction of poverty.

This segmentation of the educational system in regard to educational quality also impacts the insertion of graduates into the labor market. There would be, to put it simply, an education for the poor and an education for the rich, in terms of content, attitudes, and procedures. This, in addition to the expenditure per student that impoverished and indebted states must pay, ends up undermining the future competitiveness of the poorest children who do not have other educational options.

## Rural Areas

Although rural migration to cities ceased to assume a central role in explaining urban problems, this continues to be the basic factor in explaining the composition of rural populations. Given the selective pattern of migration and the different propensities to migrate by sex, age, and educational level, the rural population in less developed countries is older than might be expected by the stage of the demographic transition that it is going through. Furthermore, according to some indicators, impoverishment of the rural population could be taking place, explained by migration to the cities.

The outcome of today's rural migration is not without significance. Countries with less vigorous urbanization have a high risk of impoverishment due to the migration of the impoverished rural population to medium-sized cities. This pattern could explain why some Caribbean countries, for example, despite having shown signs of some favorable economic evolution, saw their poverty levels increase. In these cases, the better economic conditions of the urban sector would be acting as attractive factors for the rural poor, but attracting more labor than necessary to join the economic growth circuit. This fact acquires current relevance because it has been suggested that the hardest nucleus of poverty seems to be found in the households that inhabit intermediate cities, and not so much those residing in the major metropolitan centers.

## International Migration and Remittances

The relationship between international migration and poverty involves different units of analysis. Movement across national borders has an impact at the individual, family, community, and national levels. International migration can impoverish the emigrant in the destination country. But by sending remittances, migrants can help their family and community at home overcome poverty.

The transfer of population from less developed regions to more developed ones has been increasing during the last decades. For this simple reason, the volume of remittances sent by migrants to their families was also increasing. As a result, there are several countries in which the incidence of remittances as a portion of national incomes is truly high.

The literature agrees that migration flows from less developed to more developed countries will continue to increase in the coming years. The reason is that more developed countries will strengthen strategies for attracting qualified human resources. For those seeking a better life, emigration will continue to the extent that the best remuneration, the greatest stability, and job

prospects continue to be difficult to find in the countries of origin. As a result, it can be expected that remittances will continue to grow as the migratory flow increases.

Along with the increased mobility of the population, there is a certain tightening of the restrictions on movement. This seems like a paradox in the era of globalization. The lack of global labor markets means that migrants and refugees are subject to strict practices that regulate their mobility and that constitute barriers to entry and permanence. An important consequence of such practices is the lack of documentation, which in turn increases the negative perception of immigration in receiving countries.

Low-skilled migrants from less developed countries are inserted in the worst occupations within the employment structure in the countries to which they migrate, especially if they are industrialized. Undocumented migration, or pre-migration un-documentation, increase the probability of occupying marginal sectors in the occupational structure of receiving countries.

The sectors in which low-skilled migrants are inserted are characterized by a low and unstable level of remuneration. This feature generates an equally unstable flow of foreign exchange in terms of remittances. In this way, receiving households depend on an income flow that can be diluted at any time, which increases their vulnerability and the risk of facing an episode of poverty. Countries that are more dependent on foreign exchange earnings are more vulnerable to the cyclic patterns of the countries in which their citizens reside.

It should be emphasized that talking about emigration of low-skilled labor does not imply that migrants from less developed countries are necessarily poor. The available evidence shows that international migration is beyond the reach of the poorest segment of the population, whose probability of migrating is extremely low. For example, although the average level of education of all Latin American and Caribbean immigrants to the U.S. is lower than that from other countries and natives, immigrants have a higher educational level than the average of their original populations.

## Effects of Remittances

The impact that remittances have on poverty depends on the use that households give to the amounts received in this concept. Remittances can drive economic development, especially if households spend in the economies of the countries where migration originated. The use of remittances in the purchase of durable consumer goods stimulates aggregate demand, causing an increase in labor demand in the local industries that produce or market these goods.

The impacts both in rural areas and in specific localities and regions within countries, can be decisive for economies, as it has been observed in cases such as that of Mexico (García Zamora, 2000; Lozano Ascencio, 2000; Tuirán, 2002).

Although insufficient, in recent years evaluations of the impact of remittances on development in various countries of the world tend to be aligned around their net positive effects, especially on consumption and capital formation. At the same time, this has been identified as an “optimistic” interpretation of remittances, as there is also an accumulation of evidence on their multiplier effects, and the increasingly sharp distinction between family and collective remittances.

## International Migration as an Investment of the Poor

International migration can be conceived of as an investment project carried out by households with the purpose of obtaining net positive returns. Looked at from that point of view, the migrant individual would appear as the *agent* of a *principal-agent* economic relationship. Household members will promote investment (migration) hoping to obtain a positive net flow that will be evaluated based on the returns (remittances) throughout the life of the project (the duration of the migration itself). Costs will not only be monetary and quantifiable in money, but also psychic, caused by the absence of the migrant and by the problems of adaptation to a new culture.

Thinking about migration in this way predicts that poverty-related migration flows will decrease if economic convergence occurs between more and less developed countries. To the extent that large inequalities persist, emigration stands as an alternative to facing harsh living conditions and job uncertainty.

From the point of view of policy, taking advantage of the opportunities created by international migration and sending remittances to overcome poverty fundamentally involves promoting remittances' productive use. To achieve this, factors such as the diversity of transfers (family or collective), channels of referral (formal or informal), shipping costs, and purposes of use (consumption, savings, or investment) should be considered.

It should also be considered that these policies do not replace social anti-poverty programs. Furthermore, it would be convenient to think about how they can be integrated and articulated in social programs, for which it would be necessary to first recognize the positive side of remittances for poverty relief.

The limited evidence available indicates that international migration is operating as a strategy implemented by households to generate income. If the households that receive remittance income are poor, and if that income makes the household exceed the poverty line, migration is one of the direct mechanisms for overcoming poverty. On the other hand, if the households that receive remittance income are not poor, remittances could be operating as a mechanism that helps them not fall below the poverty line. In both cases, remittances are an important factor in achieving the well-being of households in recipient countries.

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## Policies Aimed at Poverty Reduction

This section reviews, first, the public policies implemented by states to reduce poverty, and then describes how the current anti-poverty policy is configured, emphasizing how demographic dimensions are incorporated into these actions.

## Approaches to Anti-poverty Programs

Although governments' concern about poverty dates back to well before 1930, it is after the Economic Depression of 1929 that concrete measures aimed at all the poor people appear. In particular, in the post-war period the discussion about the so-called "models of economic growth" developed in the industrialized countries by Harrod (1939) and Domar (1946) was transferred to the less developed countries. The literature whose central axis is economic growth in the poor economies of Asia, Africa, and Latin America has ostensibly grown from that moment. Perhaps the most representative writing of this period is that of Lewis (1954) and later that of Kuznets (1955). The distinguishing feature of this period is the widespread belief in the effectiveness of economic growth in reducing poverty.

It was predicted that in the early stages of the process of modernizing economic and social structures, income inequality would increase, but that, far from being a barrier to growth, it would encourage it, since income inequality would operate as the incentive for investment and the expansion of productive capacity.

During the 1960s, hopes for increased welfare from growth waned. Empirical evidence reported national situations in which high growth did not spill over into better outcomes for the poor. Highly capital-intensive production techniques, inequality in access to land tenure and education, and the marked concentration of investments in urban areas appear as the key determinants to understand the reasons for this growth without improving the welfare of the poorest groups.

Also, during this decade, the concept of *poor workers* appears and, within these, women are often identified as the most disadvantaged group in the early phase of modernization. Relegated overwhelmingly to employment in agricultural work and in the informal sector of the economy, women also face an extending of the working day as they are also forced to carry out household tasks related to reproduction (childcare and elderly care, meal preparation and maintenance of clothing in good condition, which implies washing and sewing tasks, for example).

Also linked to the labor problem in the 1960s was the idea that the nutrition, education, and health of workers are fundamental components of investment and *non-consumption*, as the state accounts usually call them. This was then a novel concept, since it no longer alluded to physical capital but to human capital (Becker, 1964; Schultz, 1963). Employment problems are still present in the development literature, but links to demographic issues take increasing importance. The relationships between the modernization process, the migration from the countryside to the city, and the increase in unemployment are topics that were written about a lot during the first half of the 1970s (Harris & Todaro, 1970).

All this was configuring a new vision of development problems that led to what could be called the era of basic needs. The criterion in this case consisted of recognizing the need to provide all human beings with the basic means to obtain decent well-being. The structuring axes of the policies were, basically: (a) comparative advantages in the sense of using more jobs in countries where this factor abounds; (b) the state provision of basic public services: education, drinking water for consumption, and family planning and health services; and (c) promotion of the participation of the beneficiaries in the design of social policy.

The optimism of this vision began to decline in the 1980s. Because of the slowdown in economic growth, the debt crisis, and the deterioration of the terms of trade, the idea of inclusive development was losing strength. In those years, structural adjustment programs were at the center of the scene.

The policies of structural adjustment – privatizations, currency, and debt stabilization – are characterized by governments' efforts to reduce budget and trade deficits, which implied a downward adjustment of public expenditure and an increase in interest rates. The resulting growth of unemployment and job insecurity were the characteristic aspects of such programs since the second half of the 1980s and during the 1990s. Protests due to the visible consequences of structural adjustment programs arose from various sources (international organizations, church,

non-governmental organizations), and were reflected in an emblematic way in the document published by UNICEF in 1987, which demanded the “protection of the weakest instead of imposing the heaviest burden of adjustment on them” (UNICEF, 1987).

In 1998, Amartya Sen was awarded the Nobel Prize for Economics mainly for his work related to a new vision of the situation in less developed countries. Then, people began to speak of poverty in terms of human capacity, of the multidimensionality of poverty, and of related concepts (Sen, 1992). In 1990, was published the first Human Development Report published by the United Nations Development Program (UNDP). Based on the idea of poverty as a failure to improve people's capacities, human development is described as a process of expanding people's capacities and options. Income is treated in this approach as an input to achieve more significant achievements from the human point of view. The relevant dimensions that make human well-being are a long and healthy life, education, freedom of choice, and human rights.

### The Turn in the 1980s

Towards the end of the 1980s and during the 1990s, the guiding principle of all social policy became universality. This implies the recognition that all human beings, regardless attributes such as sex, race, age, language, and economic and social power, have similar rights not only to life, but also to life *with quality*.

Later on, specific situations of social risk began to be recognized according to different stages of the life cycle of the person and of families, and of clearly defined deficiencies. Policies for social protection should then point to crucial moments of the life course such as birth, childhood, pregnancy and reproduction, and old age, and to the specific needs at each stage for food, health, schooling, employment, and housing.

This was the focus of the World Bank in the fight against poverty in the early 1990s and that extends to the present day. Criticism of this view



has pointed out that these strategies remain subordinated to structural adjustment and are reduced to social measures that operate as short-term buffers of the social costs of that adjustment.

International organizations have responded to this criticism by asking countries to ensure the sustainability of interventions aimed at reducing poverty. Their strategies will thus have to contemplate the medium- and long-term, while monitoring and evaluation mechanisms will track progress in shorter periods.

The principles raised in this way require instruments. The main one implemented in the early 1990s is targeting, from which the cost-impact analysis emerges almost naturally. Targeting of specific groups by social policy and the fight against poverty then coexist with privatization, deregulation, and decentralization.

All these policies recognize the importance of investment in human capital, not only considering human capital as a crucial resource for national growth, but valuing its potential to break the vicious cycle of poverty and inequality. Likewise, social compensation mechanisms are developed in order to protect citizens with insufficient endowments of human capital or in situations of economic, social, political, or natural disasters. These are the so-called social protection networks already implemented in several countries in Europe.

### **Conditional Transfers**

Along with the new discussions and international agreements on the matter, the population explosion in less developed countries from the 1960s up through the 1980s complicated the establishment of universal policies that ensured protection and social equity. The internal migration component of demographic dynamics had a lot to do with this process. Cities receiving rural migrants were generating spaces of increasing urban marginality, and the investment needed to serve immigrants were in many cases higher than the growth rates of the economy.

In almost all less developed countries, entry rates to good-quality occupations declined during the 1980s and 1990s, in tandem with the slowdown in economic growth. The labor force displaced from occupations traditionally intensive in the use of labor and which were automated by technological change implied growth in unemployment for a group of adult workers in full productive age, in many cases heads of household who were the main providers of household income.

As a consequence of the above, the social policy of the early 2000s placed emphasis on the comprehensiveness of the interventions, recognizing the need to address the long-term without neglecting emergencies, which implied addressing structural needs and the dimensions that configured and conditioned the poverty situation.

Given the urgencies of the moment, the new anti-poverty programs, mainly in Latin America and the Caribbean, took people in extreme poverty as the main recipient of social policies. To identify them and focus action on extreme poverty, some important dimensions, such as the territorial one, were left out in some programs. The family appeared, in this sense, as the main axis of the interventions. This also allowed the inclusion of individual and family life cycle considerations among the objectives of the programs.

Since many of these programs are based on the income poverty approach and still stress mainly economic factors, initiatives to promote reproductive health and issues related to international population mobility are not integrated enough into these programs. From the perspective of the recent findings in the socio-demographic research discussed in this chapter, adolescent fertility, children's health, residential segregation, aging, and international migration, among others, are topics closely linked to the lack of income. It is difficult to deal with any of them, much less effectively reduce poverty, without referring to all of them in an integrated manner.

## Final Thoughts

The objective of this chapter was to analyze the link between demographic dynamics, poverty, and economic inequality. Today's predominant approach has its roots in the mid-1950s, but the emphasis placed on Human Rights and the gender dimension was strengthened after discussions at the 1994 International Conference on Population and Development (ICPD).

From the discovery of a demographic dynamic typical of the poorer sectors, characterized by relatively accelerated population growth, research shows that, on the fertility side, the high level of poverty is sustained by unwanted children and that these children arrive because poor couples use fewer modern methods of contraception, despite knowing about them. On the mortality side, whatever the age group to which it refers, the differentials come from causes that can be prevented and avoided with very low-cost measures that only require decisions to implement them. Part of these causes connects the issue of mortality with reproductive health, because adult mortality from HIV/AIDS is taking many lives that could be saved with a set of simple measures and adequate knowledge.

It was also shown that there are unequal reproductive behaviors among young women from extreme socioeconomic groups. Among the poorest comes the early occurrence of sexual, nuptial, and reproductive initiation. Of the three components of the triad, the one that accounts for the smallest disparity between extreme socioeconomic groups is that of sexual initiation. Breaking the link between sexual and reproductive activity is an important policy area that could have effects on the most dysfunctional expressions of the early triad for the poorest sectors of the population. In addition, policies aimed at this group of women would have a strong impact within the homes in which young women live. They would contribute to breaking the synergies that cause the intergenerational transmission of poverty.

Internal population displacement is also closely related to poverty. Migrants to the poorer regions or provinces were found to have incomes below those in these jurisdictions, while

migration into the richest regions or provinces operates in reverse. The displacement between cities of different sizes and the new forms of settlement of the urban population were also analyzed. Recent patterns show a clear process of residential segregation that tends to disrupt the interaction between the high and low-income strata. This creates the conditions for the reproduction of poverty. Despite the narrowing of the gap between rural and urban poverty, strong disparities between the two areas persist today. The rural sector has been absent from the main anti-poverty policies in the region, despite its enormous importance for the economy as a whole.

Recent research on international migrations shows that, in many cases, these operate as a strategy implemented by households to remedy situations of poverty. Remittances sent by migrants to their communities of origins are currently very important. Their volume has been growing over time, causing not insignificant macro-economic impacts. However, considerable tightening of travel restrictions has been seen lately, in part because of the COVID-19 pandemic. This fact appears as a paradox in the era of globalization and provokes practices such as un-documentation, which end up harming migrants from less developed countries in terms of remuneration and practices related to labor protection in general. Although remittances today constitute household weapons in the fight against poverty, families that depend on this source of income are subject to conditions of vulnerability due to instability and the precarious conditions of labor insertion of migrants.

Overall, it appears that some progress has been made in fighting poverty during the period we covered in this chapter. Although the economic success of China has lowered poverty and inequality numbers globally, reduction of poverty levels has also been observed in other regions of the less developed world. However, anti-poverty measures still need to be better designed and become more effective. For this to happen, such anti-poverty policies should pay more attention to the life cycle and the demography of the poor in social context.

## References

- Akerman, M., Campanario, P., & Borlina Maia, P. (1996). Saúde e meio ambiente: análise de diferenciais intra-urbanos. Município de São Paulo, Brasil. *Rev. Saúde Pública*, 30(4), 372–382.
- Alkema, L., Chou, D., Hogan, D., Zhang, S., Moller, A., Gemmill, A., Ma Fat, D., Boerma, T., Temmerman, M., Mathers, C., & Say, L. (2016). Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: A systematic analysis by the UN maternal mortality estimation inter-agency group. *The Lancet*, 387(10017), 462–474. [https://doi.org/10.1016/S0140-6736\(15\)00838-7](https://doi.org/10.1016/S0140-6736(15)00838-7)
- Altamirano, A., Pacheco, C., Huelva, L., Sáenz, M., & López, A. (2016). *Embarazo adolescente en Nicaragua. Causas y consecuencias económicas y sociales del embarazo adolescente en Nicaragua* (FUNIDES Serie Documentos de Trabajo No. 7). La Fundación Nicaragüense para el Desarrollo Económico y Social (FUNIDES).
- Andersen, L. (2003). *Population and poverty projections for Nicaragua 1995–2015*. N. 1 (mimeo).
- Bailey, N. (2020). Understanding the processes of changing segregation: Chapter 21. In S. Musterd (Ed.), *Handbook of urban segregation* (Research Handbooks in Urban Studies series) (pp. 367–377). Edward Elgar Publishing. <https://doi.org/10.4337/9781788115605>
- Becker, G. (1964). *Human capital*. Columbia University Press for the National Bureau of Economic Research (NBER).
- Bernstein, S., Hardee, K., May, J. F., & Haslegrave, M. (this volume). Population institutions and international population conferences: Chapter 15. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Bhatia, M., Ranjan, P., Dixit, P., & Dwivedi, L. K. (2018). Mind the gap: Temporal trends in inequalities in infant and child mortality in India (1992–2016). *SSM Population Health*, 5, 201–209. <https://doi.org/10.1016/j.ssmph.2018.05.001>
- Bhatia, M., Dwivedi, L. K., Ranjan, M., Dixit, P., & Putcha, V. (2019). Trends, patterns and predictive factors of infant and child mortality in well-performing and underperforming states of India: A secondary analysis using National Family Health Surveys. *BMJ Open*, 9(3), e023875. <https://doi.org/10.1136/bmjopen-2018-023875>
- Bhem Rosas, H. (1992). *Las desigualdades sociales ante la muerte en América Latina y el Caribe*. Santiago, CL, Centro Latinoamericano de Demografía (CELADE) & Organización Holandesa para la Cooperación Internacional en Educación Superior (NUFFIC).
- Bird, K. (2013). The intergenerational transmission of poverty: An overview. In A. Shepherd & J. Brunt (Eds.), (2013). *Chronic poverty: Concept, causes and policy* (Rethinking International Development Series) (pp. 60–84). Palgrave Macmillan.
- Birdsall, N., & Sinding, S. W. (2001). How and why population matters: New findings, new issues: Chaper 1. In N. Birdsall, A. C. Kelley, & S. W. Sinding (Eds.), *Population matters: Demographic change, economic growth, and poverty in the developing world* (pp. 3–23). Oxford University Press.
- Bongaarts, J. (2006). The causes of stalling fertility transitions. *Studies in Family Planning*, 37(1), 1–16.
- Breilh, J., & Granda, E. (1983). *Ciudad y muerte infantil*. Centro de Estudios y Asesoría en Salud (mimeo).
- Cabero-Roura, L., & Rushwan, H. (2014). An update on maternal mortality in low-resource countries. *International Journal of Gynecology & Obstetrics*, 125(2), 175–180.
- CEPAL. (1998). *Población, salud reproductiva y pobreza* (LC/6.2015). Economic Commission for Latin America and the Caribbean (CEPAL).
- Chaaban, J., & Cunningham, W. (2011). *Measuring the economic gain of investing in girls. The girl effect dividend* (World Bank Policy Research Working Paper No. 5753). World Bank Group.
- Chetty, R., Stepner, M., Abraham, S., et al. (2016). The association between income and life expectancy in the United States, 2001–2014. *JAMA*, 315(16), 1750–1766. <https://doi.org/10.1001/jama.2016.4226>
- Chevalier, A., & Viitanen, T. (2003). The long-run labour market consequences of teenage motherhood in Britain. *Journal of Population Economics*, 16, 323–343.
- Cortés, F. (1997). Determinantes de la pobreza de los hogares. *Revista Mexicana de Sociología*, 59(2), 131–160.
- Domar, E. D. (1946). Capital expansion, rate of growth and employment. *Econometrica*, 14(2), 137–147.
- García Zamora, R. (2000). *Los retos actuales de la teoría del desarrollo*. Migración Internacional, Remesas e Impactos Regionales. See [http://meme.phpwebhosting.com/~migracion/rimd/documentos\\_miembros/1221411.pdf](http://meme.phpwebhosting.com/~migracion/rimd/documentos_miembros/1221411.pdf)
- Gillespie, D., Ahmed, S., Tsui, A., & Radloff, S. (2007). Unwanted fertility among the poor: An inequity? *Bulletin of the World Health Organization*, 85(2), 100–107.
- Girum, T., & Wasie, A. (2017). Correlates of maternal mortality in developing countries: An ecological study in 82 countries. *Maternal health, neonatology and perinatology*, 3(1), 1–6.
- Gómez, E. (1997). *La salud de las mujeres en América Latina y el Caribe: viejos problemas y nuevos enfoques* (Serie Mujer y Desarrollo. No. 17, LC/L.990). Commission for Latin America and the Caribbean (CEPAL).
- Guzmán, J. M., Hakkert, R., & Contreras, J. (2000). *Salud reproductiva de los adolescentes en América Latina y el Caribe*. United Nations Population Fund, Office for Latin America and the Caribbean.
- Harris, J. R., & Todaro, M. P. (1970). Migration, unemployment and development: A two-sector analysis. *The American Economic Review*, 60(1), 126–142.

- Harrod, R. F. (1939). An essay in dynamic theory. *The Economic Journal*, 49(193), 14–33.
- JahaniShoorab, N., Zagami, S. E., Nahvi, A., Mazluom, S. R., Golmakani, N., Talebi, M., & Pabarja, F. (2015). The effect of virtual reality on pain in primiparity women during episiotomy repair: A randomized clinical trial. *Iranian Journal of Medical Sciences*, 40(3), 219–224.
- Jia, P., Du, Y., & Wang, M. (2017). Rural labor migration and poverty reduction in China. *China & World Economy*, 25(6), 45–64.
- Katzman, R. (2003). *La dimensión espacial en las políticas de superación de la pobreza urbana* (Serie Medio Ambiente y Desarrollo. No. 59). Economic Commission for Latin America and the Caribbean (CEPAL).
- Kuznets, S. (1955). Economic growth and income inequality. *The American Economic Review*, 45(1), I–XIV.
- Lachaud, J., LeGrand, T. K., & Kobiané, J. F. (2017). Intergenerational transmission of educational disadvantage in the context of the decline of family size in urban Africa. *Population Review*, 56(1), 102–126. <https://doi.org/10.1353/prv.2017.0004>
- Lewis, A. (1954). Economic development with unlimited supplied of labor. In N. Agarwala & P. Singh (Eds.), *The economic of underdevelopment*. Oxford University Press.
- Lozano Ascencio, F. (2000). Experiencias internacionales en el envío y uso de remesas. In R. Tuirán (Ed.), *Migración México-Estados Unidos. Opciones de política* (pp. 147–166). Consejo Nacional de Población.
- Milanovic, B. (2016). *Global inequality: A new approach for the age of globalization*. Harvard University Press.
- Minujin, A., & Delamónica, E. (2003). Mind the gap! Widening child mortality disparities. *Journal of Human Development*, 4(3), 397–418.
- Miranti, R. (2019). Examining the interdependencies between urbanization, internal migration, urban poverty, and inequality: Evidence from Indonesia. In K. Jayanthakumaran, R. Verma, G. Wan, & E. Wilson (Eds.), *Internal migration, urbanization and poverty in Asia: Dynamics and interrelationships* (pp. 47–76). Springer. [https://doi.org/10.1007/978-981-13-1537-4\\_3](https://doi.org/10.1007/978-981-13-1537-4_3)
- Monroy de Velasco, A., & Martínez Manautou, J. (1986). *Memoria de la Reunión internacional sobre Salud Sexual y Reproductiva de los Adolescentes y Jóvenes. Comunicación y Tecnología*. Centro de Orientación para Adolescentes (CORA).
- Narita, R., & Díaz, M. D. M. (2016). Teenage motherhood, education, and labor market outcomes of the mother: Evidence from Brazilian data. *Economía*, 17(2), 238–252.
- Paz, J., Guzmán, J. M., Martínez, J., & Rodríguez, J. (2004). América Latina y el Caribe: Dinámica demográfica y políticas para aliviar la pobreza. *Población y Desarrollo*, 6(E), 1–73.
- Paz, A., Doron, I., & Tur-Sinai, A. (2018). Gender, aging, and the economics of “active aging”: Setting a new research agenda. *Journal of Women & Aging*, 30(3), 184–203. <https://doi.org/10.1080/08952841.2017.1295677>
- Rotenberg, S. (this volume). Priority groups in population policies: Chapter 31. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Ruiz Cantero, M. T. (2019). Perspectiva de género y derechos humanos en las enfermedades infecciosas. In *Monografías 39 Perspectivas de Género en Medicina*. Fundación Dr. Antoni Esteve.
- Schultz, T. (1963). *The economic value of education*. Columbia University Press.
- Sen, A. (1992). *Inequality re-examined*. Harvard University Press.
- Sentell, T., Aires da Câmara, S. M., Ylli, A., Velez, M. P., Domingues, M. R., Bassani, D. G., Guo, M., & Pirkle, C. M. (2019). Data gaps in adolescent fertility surveillance in middle-income countries in Latin America and South Eastern Europe: Barriers to evidence-based health promotion. *South Eastern European Journal of Public Health (SEEJPH)*. <https://doi.org/10.4119/seejph-1885>
- Steinert, J. I., Zenker, J., Filipiak, U., Movsisyan, A., Cluver, L. D., & Shenderovich, Y. (2018). Do saving promotion interventions increase household savings, consumption, and investments in Sub-Saharan Africa? A systematic review and meta-analysis. *World Development*, 104(C), 238–256. <https://doi.org/10.1016/j.worlddev.2017.11.018>
- Tuirán, R. (2002). *Migración, remesas y desarrollo*. Taller Internacional Migración, Desarrollo Regional y Potencial Productivo de las Remesas.
- UNICEF. (1987). *Ajuste con rostro humano* (Seminario sobre políticas de ajuste y grupos vulnerables en América Latina). UNICEF.
- United Nations. (1995). *Global prevalence of vitamin A deficiency* (No. WHO/NUT/95.3). World Health Organization.
- Väisänen, H. (2016). Educational inequalities in repeat abortion: A longitudinal register study in Finland 1975–2010. *Journal of Biosocial Science*, 48(6), 820–832.
- Wietzke, F. B. (2020). Poverty, inequality, and fertility: The contribution of demographic change to global poverty reduction. *Population and Development Review*, 46(1), 65–99.
- Wright, D., Rosato, M., Doherty, R., & O’Reilly, D. (2016). Teenage motherhood: Where you live is also important. A prospective cohort study of 14,000 women. *Health & Place*, 42, 79–86.



# Bioethics, Sex Selection, and Gender Equity

# 33

Laura Rahm

## 'From Chance to Choice'

For most couples in history, reproduction was a natural lottery. People had only primitive means of controlling fertility, primarily through cultural practices that dictated long periods of abstinence, either before or during marriage. If they wished to better control the size of their family, they often had to turn to folk-methods to induce miscarriages or such heartless methods as infanticide, neglect, or abandonment of undesired children. The advent of modern biology in the twentieth century and the rapid rise and diffusion of reproductive technologies heralded the end of reproductive chance and marked the beginning of rapidly expanding reproductive choice (Buchanan et al., 2000). Since the 1960s, major technological advances were made with greater biological knowledge, including reliable contraceptives, safe abortions, and assisted reproduction, which allowed people (particularly women) to have greater autonomy over their reproductive goals (on contraception, see Chap. 27: *The Contraceptive Revolution* of this *Handbook* [Cleland, this volume]). New choice landscapes opened up, not only in terms of timing, spacing, and number of children, but

increasingly also in early identification of embryos with serious genetic or developmental flaws, and in the ability to select the sex of children even before conception (Klitzman, 2019; Wahlberg & Gammeltoft, 2017). The backdrop of this growing reproductive autonomy has been the women's rights movement of the twentieth century that fought for bodily autonomy, the trend towards smaller family size, higher female education, increased labor force participation for women, and postponed marriage and childbearing. While there are vast regional and national differences in how these socio-demographic trends play out, most countries have experienced a version of these changes (Rapp, 2017).

Important progress towards gender equality has been made. However, technology has also caused gender-related backlashes, especially in countries with deeply engrained customs that value males over females. The clash of new technologies with ancient son preference and lower fertility has made for a toxic mix: the large-scale deselection of females, known as gender-biased sex selection (GBSS; see also Box 33.1). Sex selection started to emerge in the 1980s in different parts of Asia with the emergence of ultrasound—enabling women to detect the fetal sex prenatally and deselect daughters when in quest of a son.<sup>1</sup> It quickly spread to other regions and is practiced today in a

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<sup>1</sup> Deselection of daughters refers to prenatal fetal sex diagnosis followed by selective abortions of female fetuses.

dozen countries around the globe, including in demographic giants like China and India. Rooted in patriarchal kinship systems, where women can obtain a higher social standing when giving birth to at least one son, the practice has had unprecedented effects on the natural sex distribution. Almost 4% of the expected global female population today, based on normal ratios of sex at birth, is missing. Where before these females were “missing” due to infanticide and neglect (Sen, 2003), they are nowadays selectively aborted or deselected even earlier, at a preconception stage (Bhatia, 2018). In the absence of this discrimination, there would have been today over 140 million more women on earth (Bongaarts & Guilmo, 2015). This demographic snapshot is probably the strongest evidence of the global discrimination against women and undermines global efforts towards gender equality (Sustainable Development Goal 5). Given its scale and evolution, GBSS raises important questions about the ethical use of biotechnology and its gender, demographic, and policy implications (Dondorp et al., 2013).

**Box 33.1: Gender and Sex**

Gender is the socially constructed role assigned to women and men, girls and boys, while sex refers to the biological differences between females and males. The terms are closely related but should not be used interchangeably as the concept of gender-biased sex selection (GBSS) shows. GBSS refers to the selection of sex of the offspring driven by socio-cultural gender biases, e.g., the value given to sons over daughters.

As an ever-wider range of sophisticated biotechnologies emerged that impacted the very start (and end) of life, a new terminology was needed. The term *bioethics* came into existence to capture the richness and complexity of these new advances (Callahan, 2018). Bioethics has been defined as “the study of what is right and wrong in new discoveries and techniques in

biology” (Cambridge Dictionary, 2020). Defining what is right and wrong requires careful weighing of individual *rights* and interests of the involved parties. This is a difficult undertaking since the new technologies that offer advantages also often introduce problems that are unforeseen, and which only become visible over longer time scales. María Casado, Chairholder of the UNESCO Chair in Bioethics at the University of Barcelona, provides a contemporary definition of bioethics as, “*the analysis of the ethical, legal, social and political aspects of the impact of biomedicine and biotechnology, from a framework of respect and the promotion of the recognized human rights*” (Casado & López Baroni, 2020: 10). This definition focuses on the ethics of individual rights but leaves out population-level consequences. Population-level bioethics are the moral duties to current and future generations that only become visible when examining the large-scale demographic consequences of new biotechnologies. Bioethical dilemmas at a population level are major concerns in terms of population policy, as policymakers are entrusted not only with the well-being of its individual citizens, but also to maximize the well-being of the group (May, 2012).

This chapter deals with the under-investigated field of population-level bioethics and targets mainly demographers, but it is also of interest to professionals in the areas of social science, bioethics, law, and political science. First, we highlight selective reproductive technologies focusing in particular on their ethical and gender implications. Second, we discuss the demographic imbalances (in particular sex imbalances) generated by the advent of selective reproduction. We provide an overview of affected countries and stress the number of missing females and further complications that arise from these imbalances. Third, we present public policies implemented to limit the negative aspects of new technologies. We assess their impact and point to the surprising demographic and gender related backlashes they have had. The conclusion summarizes the main points and stresses the growing importance of bioethics within demography as increasing

technologies of choice lead to ever-greater demographic challenges for humanity. This chapter confines its focus to GBSS and selective reproductive technologies, but the bioethical, gender, and demographic implications therein are indicative of the future problems and the broader policy discourse that lies ahead in regard to issues of reproductive engineering and biotechnology more generally.

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## Selective Reproductive Technologies

Selective reproductive technologies (SRTs) in the twenty-first century have opened up unprecedented possibilities to control human reproduction. Advances such as in vitro fertilization (IVF) and pre-implementation genetic diagnosis (PGD) have separated sex from reproduction and genetics from gestation. According to Wahlberg and Gammeltoft (2017: 1), “*selective reproduction increasingly takes place through decisions about which gametes to fertilize, which embryos to implant or which fetuses to abort.*” In their seminal work, the authors define SRTs as means to enable or avoid the birth of offspring with specific characteristics. These technologies are employed principally to: (1) select the desired sex of the offspring; (2) prevent disease or disability; (3) select certain traits (e.g., through donor selection); and (4) treat sick siblings (e.g., through the provision of organ or cell transplant). All these usages raise important bioethical questions. We will focus on the first case (sex selection) because it is very common, highly controversial, and has had important gender and demographic implications, which are of particular relevance for this *Handbook*. We will give a brief review of the technological advances facilitating sex selection before exploring the gender, bioethical, and legal ramifications of the practice.

## Prenatal Sex Selection

Prenatal sex selection entails fetal sex determination followed by abortion. Prenatal sex determination became first available with invasive procedures in the 1960s (chorionic villus

sampling or amniocentesis) that had a 0.3–0.5% risk of miscarriage and since the 1980s with non-invasive ultrasound, which produces reliable sex determination after 13 weeks of gestation. Since the 2000s, non-invasive prenatal testing (NIPT) based on cell-free fetal DNA in maternal plasma has become available allowing for sex determination (and other genetic screening) already after 7 weeks of gestation (De Jong et al., 2010).

Strong market incentives – especially throughout Asia – have driven down the price of sex determination. Ultrasound providers have recognized their niche for sex selection. Despite restrictions existing in most countries, many providers readily offer the latest services using 3D and 4D scans for non-medical sex determination, also with portable devices. Even though sonography is a safe procedure, an over-commercialization has been noted, where women undergo far more ultrasound scans during a pregnancy than necessary or recommended to closely monitor the ‘quality’ of the offspring (Gammeltoft & Nguyễn, 2007). Since ultrasound is an important diagnostic tool during pregnancy and doctors can easily communicate the fetal sex – also indirectly (e.g., looks like the father) or non-verbally (e.g., using blue or red ink pens) – regulating the practice has become increasingly difficult.

A similar trend occurs with NIPT. Prices are dropping rapidly as the market booms for such tests. Some providers are overselling the accuracy of testing results, spurring some into abortions of healthy babies (Daley, 2014). Having early sex determination at their fingertips enables women to avoid surgical abortions and undergo instead medical abortions<sup>2</sup> often available on demand during the first trimester and increasingly also at

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<sup>2</sup> Medical abortion consists of taking two different abortion pills (using a combination of mifepristone and misoprostol) to end the pregnancy. It is usually available up to 10 weeks of gestation. Meanwhile, surgical abortions involve an operation to remove the pregnancy from the womb. Common methods using local or general anesthetic are aspiration up to 14 weeks of gestation or dilation and evacuation for second trimester abortions (see Chap. 28: *The Role of Abortion in Population Policies* of this *Handbook* [Crane & Maistrellis, [this volume](#)]).

home through self-administered abortions (WHO, 2022). Scholars anticipate that with easy, safe, and early access to non-invasive prenatal diagnostic tests, selective abortions are likely to increase. These procedures all refer to sex determination after conception (between 8 and 13 weeks) followed by abortion options. The timing (first vs. second trimester) and method (medical vs. surgical abortion) may make a difference to women and has direct policy implications, which we will discuss below. While sex-selective abortions still appear to be the most frequently used form of sex selection, earlier forms are on the rise.

### Preconception and Pre-implementation Sex Selection

Recent advancements in reproductive technologies have become increasingly attractive as they enable couples to avoid an unwanted pregnancy in the first place. Two major technological advances make this possible: (1) preconception sex selection also known as sex-selective insemination, which takes place before fertilization using sperm sorting, artificial insemination (AI), or in vitro fertilization (IVF); and (2) pre-implementation sex selection also known as sex-selective embryo transfer, which is done after fertilization using IVF in combination with pre-implementation genetic diagnosis (PGD) or preimplantation genetic screening (PGS).

1. Preconception sex selection relies on sperm sorting commonly practiced with the Microsort flow cytometry method. *“This method involves staining the sperm with a fluorescent dye and then leading them past a laser beam where the difference in DNA content between X- and Y-bearing sperm gives a measurable difference in fluorescence”* (Dondorp et al., 2013: 1448–1449). The technology has improved over the past years but there is still an error margin as trials have shown that 92% of X-bearing sperm result in female pregnancies and only 84% of the use of Y-sorted sperm result in male pregnancies.

Sperm sorting is likely to become more attractive for sex selection because it avoids prenatal sex diagnosis and difficult decision-making processes around abortion and unwanted pregnancies. At present, there are no apparent health risks linked to the sperm sorting technology. Pregnancy outcomes and malformations appear to be within the normal range as Microsort research trials with 760 children have shown (Dondorp et al., 2013).

2. Pre-implementation sex selection is done after fertility by transferring embryos with the desired sex, using IVF and PGD or PGS. Sex selection can be easily a byproduct of genetic diagnosis or screening of IVF embryos. PGD and PGS provide information about the sex chromosomes and the sex of the embryos prior to transfer. Providers are frequently confronted with requests to transfer an embryo of a specific sex, as many prospective parents have a preference for the sex of their future child. Medical committees have therefore recommended randomizing the embryo transfer and making the selection process only on the basis of viable embryos and not on the basis of sex. Pre-implementation genetic diagnosis and screening are rapidly evolving and the subject of substantial debate and investigation (Dondorp et al., 2013).

Both preconception and pre-implementation sex selection routinely make use of IVF, which was first developed in the late 1970s to treat infertility and genetic pathologies. IVF quickly became an integral part of modern reproductive medicine and Obstetrics and Gynecology training. Sperm and the egg cells from two or more donors are combined and fertilized in vitro (literally: in glass) in a laboratory. Often more than one embryo is created and then transferred into the woman’s uterus, where pregnancy takes place as usual. IVF has led to an increase in twin pregnancies and several countries have constrained the number of embryos that can be transferred into the womb. Several steps are necessary for IVF to work – including superovulation, egg retrieval, fertilization, embryo culture,



and embryo transfer – and the procedure can fail at any of these stages with success rates varying between 15% and 20%, depending on clinics and patients.

IVF can be harmful to the offspring. Compared to spontaneous conceptions, IVF babies are twice as likely to suffer from perinatal mortality, preterm delivery, lower birth weight, pre-eclampsia, and other problems. IVF babies also have a greater risk of birth defects and mental disabilities. This is also the case when controlled for the age of the mother as well as other factors. Furthermore, IVF-born babies are up to 60% more likely to develop mental retardation and 2.5 times more likely to suffer from severe disabilities. Given the impact of these new technological developments, important bioethical questions arise over the use of sex selection for non-medical reasons (Klitzman, 2019).

### Bioethical Debate of Sex Selection

Bioethicists often refer to the following four fundamental principles when evaluating the benefits and risks of medical innovations: autonomy, beneficence, non-maleficence, and justice (Beauchamp & Childress, 2001). The use of SRTs raises questions in each of these areas. Couples should have autonomy to freely decide whether or not to undergo certain procedures and should be free from any coercion. Medical treatment should avoid harm and benefit patients while also contributing to the greater good in terms of justice. The idea of justice is that the burdens and benefits of new technology should be distributed equally among all groups in society. However, as we begin to see there are fundamental tensions between these principles, and it is within the bioethical debate to consider what is better or worse for the individual or the group.

Applying these principles to sex selection on a global scale is not an easy endeavor, because of the vast national and regional differences in sex selection attitudes and practices. For example, the arguments for and against sex selection for non-medical reasons will be substantially different in Western countries in the absence of specific

sex preferences (Dondorp et al., 2013) than in several Asian countries with strong son preference (Rahm, 2020). Ethical considerations differ not only regionally, but also depend on *how* and *why* sex selection is practiced (e.g., through pre-implementation, preconception or prenatal methods; and for medical, social, or family balancing reasons). Sex selection for medical reasons to avoid sex-linked genetic diseases is generally accepted. Given its rare occurrence, it is unlikely to lead to demographic imbalances (Buchanan et al., 2000). Sex selection for social or non-medical reasons is more problematic. We try to balance here the different standpoints and apply the four bioethical principles to sex selection by drawing from existing literature (Buchanan et al., 2000; Dondorp et al., 2013; Gupta, 2000; Sleeboom-Faulkner, 2010).

**Bioethical Principle 1: Autonomy** Couples should have autonomy to freely decide whether or not to undergo certain procedures and should be free from any coercion. Scholars have argued from a rights-based perspective for individuals to be free from unwarranted governmental intrusion in personal matters of procreation (Roberts, 2002), and for the parental right to genetically modify their embryos, including the sex of their future child (Ossareh, 2017). This line of argumentation is linked to the right to privacy, reproductive autonomy, and access to medical information. Scholars have argued that ‘social sexing’ is not necessarily wrong (Steinbock, 2002) and that parents should be allowed to sex select (Kumar, 1985). However, future offspring cannot speak for themselves and there is the danger of the ‘commodification’ of children when parents are granted control over nonessential characteristics of their future offspring (Dondorp et al., 2013). Sex selection can also be seen as a slippery slope for ‘designer’ babies that are routinely screened and selected for eye color, height, or potentially even more consequential traits like intelligence or personality (Klitzman, 2019).

**Bioethical Principle 2: Beneficence** Medical treatment should benefit the patient. In countries where sex selection is prevalent, women can

obtain a higher social status when giving birth to at least one son. Certain social privileges are only reserved to women with sons. At an individual level, women can therefore benefit directly from sex selection and may make conscious decisions over their body, future offspring, and family composition to maximize health and minimize harm. Children may also benefit because they are desired (Becker, 2007) or would otherwise face postnatal neglect or infanticide (Kumar, 1985). As such, prenatal sex selection is seen as a 'lesser evil' compared to postnatal sex selection. At a societal level, sex selection serves as a powerful tool to reduce continued childbearing, especially in overpopulated and underdeveloped countries. Fewer girls born would result into fewer future mothers and couples would not need to keep reproducing in the quest for a male offspring. In this logic, sex selection maximizes parental beneficence by serving their demand for a child with the desired sex, while at the same time benefiting the society through reduced population growth (Bumgarner, 2007).

**Bioethical Principle 3: Non-maleficence** The ethical principle of "do no harm" to the involved patient and others in society is probably the strongest argument against sex selection for non-medical reasons, because the practice can be considered harmful on several levels. At the individual level, women may face family or social pressures to undergo repetitive abortions against their will, which can have negative effects on their physical and psychological health. Assistive reproductive technologies bypass abortions, but they have limited success rates, which again can lead to negative physical and emotional consequences for the patient. Sex selection can also harm the embryo or fetus and can have negative effects on the welfare of expected children who witness their parents' gender biases, and may even pass those same biases on to the next generation. At a societal level and when done on a large scale, sex selection can lead to demographic, social, and political disruptions in the societies concerned, which reinforce gender inequality, stereotypes, and discrimination against women.

**Bioethical Principle 4: Justice** The burdens and benefits of technological advances should be equally shared among all groups in a society. There is a concern that sex selection may widen class disparities and deepen unfair use of limited medical resources. The upper class is able to afford costly high-tech IVF/PGD, which involves less social stigma and fewer psychological consequences on the mother, while the poor and rural families turn to traditional methods, selective abortions or continued childbearing (Bumgarner, 2007). The benefits and burdens are not shared equally, because sex selection is predominantly practiced by the educated and well off, while the poor and marginalized are particularly hit by the consequences. The widespread use of sex selection leads to destabilizing demographic effects and has long-term consequences on population and marriage patterns (see section *Demographic Imbalances*). While rich men tend to have better marriage prospects, their poor and rural counterparts are forced into bachelorhood. The fewer girls and women there are, the more likely they are to face further discrimination by the many extra males that compete over females (Hudson & Den Boer, 2004; Srinivasan & Li, 2018). Sex selection therefore raises numerous concerns in terms of justice. Scholars also refer to different moral standpoints, where prenatal sex selection in the 'Global South' is seen as a sign of son preference, while preconception and pre-implantation sex selection of embryos in the 'Global North' is classified as 'family balancing' or 'lifestyle' sex selection (Wahlberg & Gammeltoft, 2017). These diverse ethical standpoints need to be considered when regulating the practice.

### **Regulation of Sex Selection Technology in the U.S., Europe, and Elsewhere**

In most countries around the world, the use of reproductive technology to choose the sex of future offspring is prohibited for other than medical reasons. But legislation can vary across or sometimes also within countries. A growing tendency can be observed of citizens traveling

abroad for reproductive services to evade restrictions in their home countries or turning to illegal services. Below we provide a brief overview of specific regulations on the use of IVF/PGD for sex selection, notably in Europe, the U.S., and elsewhere.

In the U.S., the use of SRTs is unregulated. Sex selection for non-medical reasons is currently a matter of state law and not all states have provisions. Commercial providers routinely offer the technology for ‘social sexing.’ The standpoints of the U.S. American Society for Reproductive Medicine (ASRM) on the matter have evolved over the past two decades. In 2004, PGD for sex selection to prevent the transmission of serious sex-linked genetic disease was declared acceptable and recommended. In 2015, ASRM started to encourage clinics to develop and disclose their policies on the provision of non-medical sex selection. Since 2018, ASRM encourages clinics to prohibit pre-implementation sex selection and rather opt for embryo quality as selection criteria. Clinics are also asked to use randomization to select embryos for transfer in case more embryos are suitable than can be transferred (Daar et al., 2018). Although in the U.S. at present no states prohibit the practice legally, it is worth noting that the practice is prohibited in Canada and in most European countries.

In most European countries, sex selection for non-medical reasons is banned (Calhaz-Jorge et al., 2020). Embryo sex selection (except to prevent sex-linked diseases) is not allowed in any of the 43 countries performing ART and IUI in Europe. Article 14 of the Convention on Human Rights and Biomedicine, which has been ratified by three quarters of the members of the Council of Europe, states that *“the use of techniques of medically assisted procreation shall not be allowed for the purpose of choosing a future child’s sex, except where serious hereditary sex-related disease is to be avoided”* (Council of Europe, 1997: 4). Despite its legal prohibition, sex selection is still a matter of debate in Europe. The European Society of Human Reproduction and Embryology Task Force did not come to a unanimous position

with regard to the acceptability of sex selection for non-medical reasons in the context of assisted reproduction (Dondorp et al., 2013).

Elsewhere in the world, the practice is commonly banned or restricted to certain exceptions. For example, many Asian countries (including Vietnam, Nepal, India, South Korea, and Japan) have outlawed the use of reproductive technologies for sex selection for non-medical reasons. Only in Indonesia, sex selection using ART is permitted for the second child. In Australia, the National Health and Medical Research Council has banned the use of assisted reproductive technology for social sex selection and Australians, when surveyed, generally disapprove of the practice (Kippen et al., 2018). In much of North Africa and the Middle East, sex selection is also an issue and most often prohibited. Only in Israel is the practice authorized in exceptional cases (Leiter, 2014).

These regulatory efforts are commonly undermined by transnational travel for reproductive services. Where sex selection services are unavailable or illegal in the home country, some couples seek treatment abroad, engaging in an emerging trend of “cross-border trade in assisted reproduction” (Whittaker, 2011). A lucrative sex selection industry has developed in several countries to cater to foreign demand.<sup>3</sup> Several companies in the U.S. and Thailand seek to attract especially Asian clients. According to news reports, hundreds of couples from China, Hong Kong, or Singapore visit Bangkok every year to undergo IVF treatment, asking primarily for boys (Kaye & Jittapong, 2014). While the number of travelers is too small to impact sex ratios, sex-selective practices in the countries of origin have already led to drastic disruptions in terms of demographic imbalances.

<sup>3</sup> According to Reuters, the business of sex selection is estimated to be worth USD 150 million in 2013, with a growing demand of about 20% per year (Kaye & Jittapong, 2014).

## Demographic Imbalances

Sex selection has caused severe demographic distortions in sex ratios in several Asian countries and represents a population-level bioethical dilemma. Historically, the preference for males and the bias against females resulted mainly in higher mortality rates among girls and young women. Since the 1980s, advances in reproductive technologies and pressure from lower fertility have led to rising levels in the sex ratio at birth in the affected countries (UNFPA, 2012). This trend has important implications for the sex composition of a large part of the world's population (Bongaarts & Guilмото, 2015). Even though there are signs of improvement in certain regions, the impact of demographic masculinization will be felt for decades to come (Chao et al., 2021). Here we focus on the demographic implications of gender-biased sex selection (e.g., the resulting sex imbalances at birth) and the gender-related backlashes reproductive technologies have caused on a macro-level.

### Sex Imbalances at Birth

The sex ratio at birth (SRB) refers to the ratio of male to female births, generally expressed as the number of male babies born for every 100 female babies born. The biological SRB fluctuates around 105 male births per 100 female births, even though levels tend to be closer to 103 in sub-Saharan Africa and to 107 in East Asia (Chahnazarian, 1988; Chao et al., 2019). This biological ratio favoring males at birth is generally offset by higher male child and youth mortality, so that by reproductive ages the ratio is nearly balanced. Figure 33.1 provides a geographic overview of the countries with excessively skewed sex ratios at birth (marked in dark).

These range from Albania in Eastern Europe, to Armenia, Azerbaijan, and Georgia in the Caucasus region, to major Asian nations including India, China, and Vietnam. While some countries have severely skewed sex ratios, well above 110 (e.g., China and Azerbaijan), others show more mild forms of sex imbalances, at

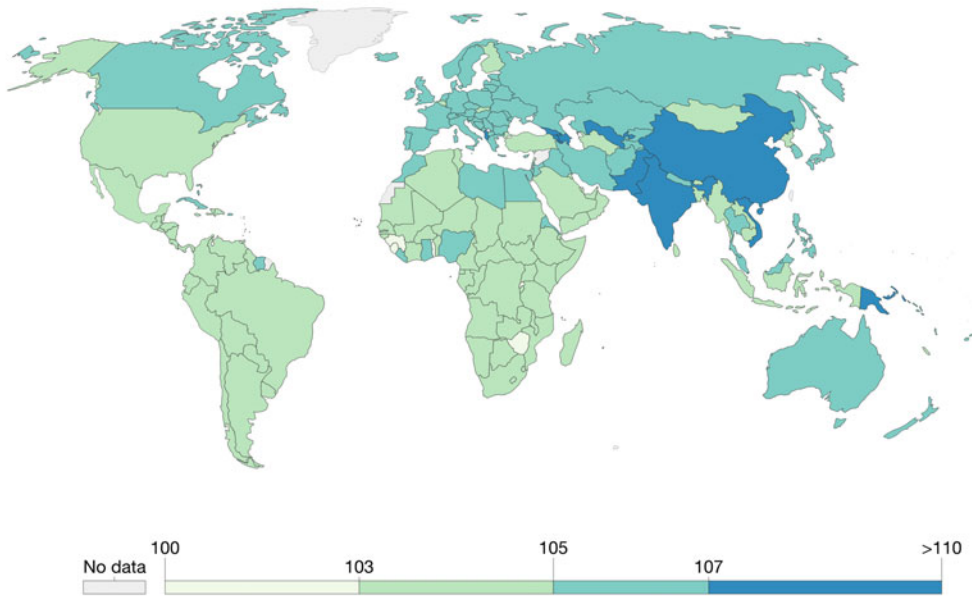
107–108 (e.g., Montenegro or Taiwan). Affected countries vary significantly in terms of their population size (with over a billion in China and India vs. under a million in Montenegro) and in terms of their total fertility rate (with levels above vs. well below replacement level). We can also note significant diversity in terms of countries' social and religious structures, political systems, and economic trends. We find among them democratic and communist countries, countries with Hindu, Muslim, Christian, Buddhist, or Atheist majorities, as well as lower-middle to upper-middle-income countries.

This leads us to examine the factors behind sex imbalances at birth. Three preconditions are commonly associated with rising levels of SRB: (1) access to technology or the “supply” factor; (2) son preference or the “demand” factor; and (3) lowering fertility or the “squeeze” factor (Guilмото, 2009). The *supply* factor is mainly driven by new access to ultrasound, fetal sex determination, and sex-selective abortion technologies, and more recently IVF and PGD. In contrast, the *demand* for sons is ancient and has been around much longer than novel technological options. Son preference is commonly associated with patrilineal and patrilocal kinship systems, where assets are passed on through the male line and sons are expected to reside with, and provide for, their parents in old age (Croll, 2000). Lastly, fertility decline made for a situation where couples are ‘squeezed’ into achieving their desired family composition while having fewer births. These three preconditions are, to different degrees, present in all of the affected countries. Surprisingly, however, other countries in the region with similar family systems and fertility trends have remained immune to sex selection, e.g., Turkey, Japan, Myanmar, Cambodia, or Iran. This discrepancy can largely be explained by the non-acceptance of abortion practices and greater flexibility in their kinship systems (Rahm, 2020).

Highly skewed sex ratios at birth, above 110 male births per 100 female births, first appeared in South Korea, China, or India during the 1980s with the introduction of ultrasound, but were for long attributed to inaccurate birth

## Sex ratio at birth, 2017

The sex ratio at birth is measured as the number of newborn boys for every 100 newborn girls.



Source: World Bank

OurWorldInData.org/gender-ratio • CC BY

**Fig. 33.1** Sex ratio at birth in 2019, World Map

records or other factors unrelated to gender bias. While SRB rose rapidly in South Korea and China between 1980 and 1990, sex ratios in India increased at a much slower pace. This slower pace has been linked to greater regional diversity and higher fertility in India (Jha et al., 2011). Since the 1990s, the practice has also emerged in parts of Eastern Europe and the Caucasus (Das Gupta, 2015; Duthé et al., 2012; Guilmo & Duthé, 2013). Satellite states from Albania to Azerbaijan witnessed a distinct rise in SRB after the dismantling of the Soviet Union and the collapse of the communist regime. In the early 2000s, Vietnam, Hong Kong, and Nepal experienced a similar trend in birth masculinization. By that time, other countries had already plateaued, with record levels of 115–120 male births per 100 female births in China and the South Caucasus (see Fig. 33.2).

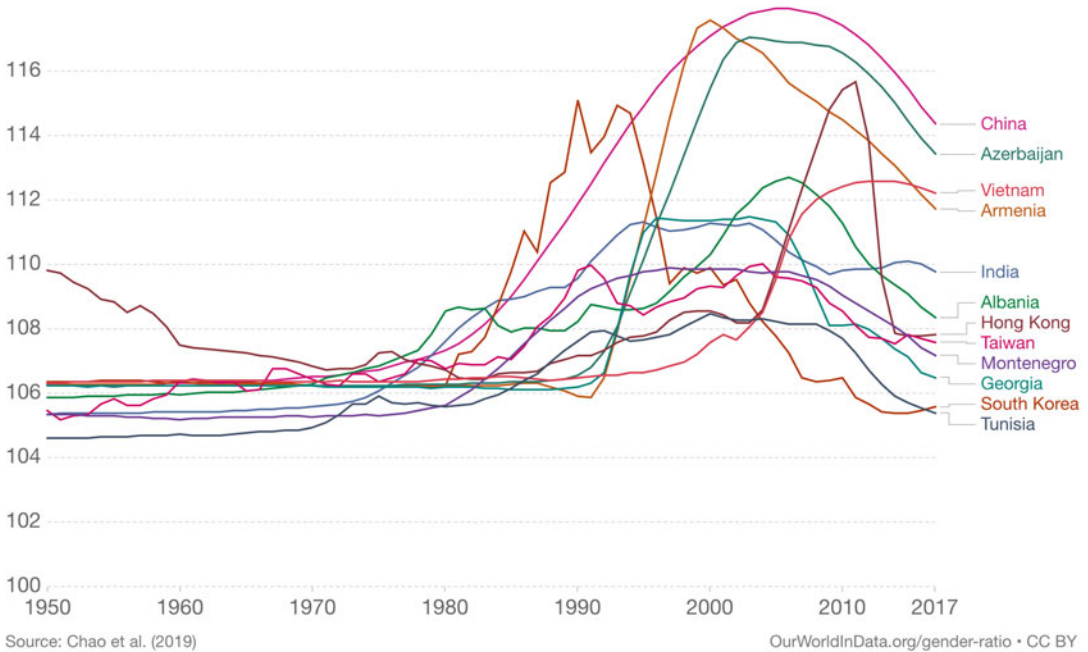
Figure 33.2 shows the sex ratio at birth between 1950 and 2017 in a number of affected countries. The data is based on SRB estimates provided by Chao et al. (2019). We turn to these

data because they stem from the same source, even though national-level birth registration tends to be the more accurate source to detect sex imbalances at birth. Figure 33.2 demonstrates the presence of significant sex imbalances at birth in a dozen countries, ranging from modest imbalances in Southeast Europe to high levels close to 115 male births per 100 female births in Azerbaijan and China. Over the past two decades, the SRB has recorded a gradual decline in a number of countries, yet their transition back to normal SRB levels is not yet completed, with the exception of South Korea, Tunisia and, possibly, Georgia.

Additionally, high sex ratios at birth have also been documented among immigrant populations in Europe, North America, Australia, and the Middle East (Dubuc & Coleman, 2007). However, due to their relatively small numbers, the national sex ratios are not affected in these countries. Some examples are people of Chinese or Korean origin in North America, people of South Asian and Chinese origin in Britain, or

## Sex ratio at birth, 1950 to 2017

Sex ratio at birth, measured as the number of male births per 100 female births. Birth ratios are slightly male-biased, with an expected biological ratio of 105 male per 100 female births.



**Fig. 33.2** Sex ratio at birth in selected countries, 1950–2017

those of Albanian origin in Greece. This indicates that migrant populations are likely to maintain the social norms of their origin countries despite their new socio-political environments.

### Missing Women

Nobel laureate Amartya Sen was the first to coin the term “missing women” referring to females, who would be alive in the absence of gender discrimination (Sen, 1990). Numerous demographic studies on the number of missing females have emerged since (Bongaarts & Guilмото, 2015; Chao et al., 2019; Coale, 1991; Klasen & Wink, 2003). Computational efforts have become more sophisticated over the past 30 years, but demographers have come back to the original computation proposed by Drèze and Sen (1990) to be the most robust and accurate one in assessing the number of missing females (Guilмото et al., 2020).

According to these calculations, the number of missing females is computed as the difference

between the *expected* and *observed* number of females, while the number of expected females is derived from the observed male population and the expected biological sex ratio (e.g., 105). This estimation process can be applied to births (e.g., number of missing female births), indicating the degree of prenatal sex selection, or to specific population age groups (e.g., the number of missing females below the age of five), indicating both prenatal and postnatal sex selection.

As for missing female births, Chao et al. (2019) calculated that the world was short 45 million females due to prenatal sex discrimination between 1970 and 2017. Meanwhile, the total number of estimated missing females (including both prenatal and postnatal sex discrimination) rose from 61 million in 1970 to 142.6 million in 2020 (Bongaarts & Guilмото, 2015). The same authors also provide important insights regarding the distribution of prenatal versus postnatal discrimination, indicating that since the introduction of ultrasound in the 1980s, the relative amount of prenatal sex selection has risen continuously,

while the share of postnatal discrimination has declined (Bongaarts & Guilмото, 2015: 225).

Recent scenario-based Bayesian projections show promising signs that the SRB is likely to plateau and decline within less than two decades in countries currently affected by demographic masculinization (Chao et al., 2021). But still the number of females missing at birth is projected to be 5.7 million by 2100 under optimistic scenarios, and 22.1 million under less optimistic scenarios. The latter case assumes the problem may spill-over to formerly unaffected countries with a strong preference for sons (ibid).

By far the biggest share of women went “missing” in China and India (with 72.3 and 45.8 million in 2020, respectively) accounting for 83% of the world total. Due to the large population sizes and the severity of gender discrimination in these two countries, 9.5% of the female population in China and 7.4% in India were missing in 2010 (Bongaarts & Guilмото, 2015). The long-term effects of these imbalances seem particularly bleak, as populations in both countries will continue to be skewed towards males until the end of the century. If the SRB continues to be skewed towards male births, this will result in a long-term male surplus of 15% in India and 20% in China (Guilмото, 2015). But even if sex ratios normalize promptly, the implications of the already missing females will cause fundamental disruptions, especially in the marriage market.

## Marriage Squeeze

Missing females cause imbalances in the marriage market known as marriage squeeze. Marriage squeeze is the demographic imbalance in which the number of potential grooms does not match the number of potential brides. As a growing number of Asian men face difficulties in finding brides, they either delay the timing of marriage or never marry at all. The trends are particularly visible in the most affected countries, with a rising proportion of ‘lifelong bachelors’ or ‘bare branches’ in India and China (Srinivasan & Li, 2018). Especially poor, less educated, and

underemployed men from rural areas suffer from the shortage of females as their disadvantaged social status makes them less desirable. Meanwhile, more educated and affluent men usually have sufficient means to marry.

Marriage squeeze has already triggered a trend towards national and transnational marriage migration, where women from poorer backgrounds are migrating to more economically developed regions (Lee, 2013). Lower socioeconomic status men often seek brides from abroad due to bleak marriage prospects in their home countries. Preference is often given to women coming from similar cultural backgrounds. Numerous push-pull factors facilitate these migrations. For example, Chinese or Korean men show preference for Vietnamese women, but cultural and language barriers persist, which make migrant brides particularly vulnerable. Migrant brides are attracted by aspirations for better living conditions and higher income, which they frequently send back home to their native families in the form of remittances. These remittances can contribute significantly to the economy of their origin countries (Davin, 2007).

Somewhat similar forces apply to marriage migration in India, even though there are noticeable variations by region, religion, and caste (Vishwakarma et al., 2019). Women from poorer states such as Bihar, Assam, or West Bengal frequently migrate across borders of caste, culture, language, ethnicity, and religion to marry men from more affluent states like Punjab, Haryana, and Gujarat. Especially in the North-western part of India, men have been forced into involuntary bachelorhood due to decades of discrimination against females. Some have engaged in “bride purchasing”, where women are sold for bargain prices and sometimes “shared” among several brothers in the family. Driven by poverty and skewed sex ratios, these interregional marriages have challenged the rigidity of caste and traditional marriage customs (e.g., the use of bride price and dowry). Informal providers have mushroomed to readily gain profits by facilitating national and transnational marriage migration (Kaur, 2012).

It is difficult to assess the scale of the phenomenon, as marriage migrations are not exclusively driven by sex imbalances at birth and economic enticements. Increases in female education and labor force participation along with hypergamy are further exacerbating factors. When women increase in social status, their pool of eligible partners becomes smaller, while the opposite tends to be the case for men. These trends play out particularly harshly in cultural contexts where traditional kinship systems stress the value of universal marriage, monogamy, and procreation within marriage and where significant family and social pressure is placed on young people to get married. Missing women, marriage squeeze, and male lifelong bachelorhood are some of the primary problems for the societies practicing gender-biased sex selection. But there are also secondary adverse effects that have been documented.

### **Gender, Health, and Political Concerns**

Sex imbalances have been associated with negative health and gender related consequences for various groups (e.g., women, children, men, and the society at large). Women are hit especially hard. Some economists assumed that female scarcity would work in women's favor as it would make them more valuable in their respective cultures and 'market' pressures would then right the situation (Becker, 2007). In fact, the contrary has been documented. Women in many of the countries mentioned above are under great pressure to conceive sons. They may be forced to undergo selective abortions or continue child-bearing until a son is born. This has adverse effects on their sexual and reproductive health and may even put their lives at risk when they seek illegal and unsafe pregnancy terminations. Women who give birth to unwanted daughters are more likely to face domestic violence, divorce, or even death. Migrant women – removed from their traditional safety networks – are more vulnerable to fall victims of violence, abuse, and human trafficking (Le Bach et al., 2007). The overall

environment becomes toxic towards women, as sexism, harassment, rape, and other forms of gender violence increase (Hakim, 2015).

Children, particularly girls, face numerous forms of discrimination in societies where sons are privileged over daughters. Girls are provided with less attention, food, and health care than their brothers, leading to excess female infant and child mortality, stunting, and wasting (Bongaarts & Guilmoto, 2015; Guo et al., 2016). Unwanted girls frequently suffer from long-term psychological trauma linked to social stigmatization and exclusion (Shijith & Sekher, 2017). The psychological and health consequences for surplus males are also alarming and include depression, suicide, alcohol and drug abuse, aggression, and violence, among others. Male bachelorhood in patriarchal settings is highly stigmatized. Social discrimination drives men into risky behaviors that are often threatening for themselves, and their communities at large (Yang et al., 2020). Studies have shown risk taking in sexual behavior among surplus males in China and India (South & Trent, 2010) and an increase in sexually transmitted disease including HIV/AIDS in regions where men cannot find stable partners (Hesketh & Xing, 2006). In sum, high sex ratios are correlated with increasingly risky sexual behavior (Bien et al., 2013).

These consequences undermine developmental progress and raise numerous political concerns. Surplus males threaten political stability and peace, as they are more likely to engage in anti-social behavior (Hudson & Den Boer, 2004). The consequences of sexual frustration especially among young cohorts are coupled with political unrest and violence (Urdal, 2006). There are also significant economic costs due to health care expenditures and indirect long-term costs. A 2015 study assessed the global economic loss in terms of GDP of countries that fail to make 'full use' of their female populations (Woetzel et al., 2015). More studies are needed for an in-depth understanding of the nuance and long-term effects of demographic masculinization in the concerned countries and regions.



## Public Policies to Balance the Scales

In light of these population-level consequences and conflicts with individual reproductive rights, numerous countries have introduced public policies to re-establish the gender balance of their populations. China, India, and South Korea were among the first countries to outlaw sex selection in the 1980s and 1990s. In the 2000s, Vietnam and Nepal introduced corrective measures in parallel with rising sex imbalances at birth. Meanwhile, the Caucasus region was a latecomer in terms of problem recognition and response as the first campaigns were initiated only two decades after the initial rise in SRB. In recent decades, a global policy platform has emerged, where similar policy instruments are transferred across countries with vast demographic, socio-cultural, political, and economic differences (Rahm, 2017). How have national and international stakeholders tried to address demographic sex imbalances and how effective have these policies been? Here we turn first to the policy evolution, before discussing policy instruments, impacts, and unintended side effects.

### Policy Evolution

Experimental studies in hospitals in Singapore and India in the late 1970s and early 1980s revealed that couples were eager to use amniocentesis for sex determination in quest of a male child. At this time, bioethics was still in its infancy and medical doctors even suggested that this could be used in combination with abortion as an effective means for governments to “put an end to this unnecessary fecundity” (Verma et al., 1975: 384). Government officials were torn. On the one side, the population policy mandate at the time in countries like South Korea, India, and China was to lower fertility and GBSS could help to achieve this goal. On the other hand, active discrimination on the basis of sex contradicted constitutional and legal obligations and was to be prohibited.

India was the first country to outlaw sex selection. Sex determination in public hospitals was prohibited as early as 1978 in response to the first sex selection trials that clearly revealed that women did not hesitate to deselect daughters. Feminist groups protested against the use of technology as a new form of gender discrimination. The Forum Against Sex Determination and Sex Preselection formed in Maharashtra in 1985 and successfully lobbied for the Pre-Natal Diagnostic Techniques (PNDT) Act in Maharashtra in 1988. This PNDT-Act served as an inspiration for the 1994 nationwide legislation under the same title. Similar bans on sex determination were introduced in South Korea in 1987 and in China in 1989. However, these provisions were merely a formality and their legal enforcement was weak across the board. Given the fact that sex selection was an effective means to lower fertility, government officials routinely turned a blind eye to existing anti-sex selection legislation (Bumgarner, 2007; Rahm, 2020).

In the 1990s, the situation changed. The work of Sen (1990) was seminal in raising academic and political concern over the more than 100 million women missing. The 1994 International Conference on Population and Development (ICPD) held in Cairo took a clear stance to condemn the “*unethical practice regarding female infanticide and prenatal sex selection*” (United Nations, 1995, para. 4.16). Its *Programme of Action* urged UN member states to enact measures to prevent this new form of gender discrimination. Within months after the ICPD, an international network of experts and policymakers gathered in South Korea to translate the ICPD guidelines into practical action and share country based lessons on how to improve data collection and policy response to address sex selection (KIHASA and UNFPA, 1996). As a result, national policies were adjusted in line with the ICPD recommendations and a platform for transnational knowledge sharing emerged that would only intensify over the decades to come (Rahm, 2017).

At the turn of the century, sex imbalances began to emerge in Nepal and Vietnam and

policymakers were able to respond quickly to the situation. They had learned from the experiences of other countries in the region (e.g., India, China, and South Korea). During this same time, the problem was going on unnoticed in the Caucasus region. Armenia, Azerbaijan, and Georgia all witnessed rising sex ratios at birth after independence, but policymakers and NGOs representatives actively denied that the problem existed. This changed with a 2011 report issued by the Council of Europe, which highlighted sex imbalances at birth in the Caucasus and Eastern Europe (PACE, 2011). The Council of Europe and the European Union strongly condemned prenatal sex selection as a form of “gendercide” (Papadopoulou, 2013) and reminded member states of their obligations under the European Convention on Human Rights and Biomedicine (also known as the Oviedo Convention), which prohibits sex selection for non-medical reasons. Since 2015, the EU has funded numerous programs to curb sex selection in the Caucasus and Asia, including the first Global Programme against Son Preference and Undervaluing of Girls (2016–2020). This initiative was implemented with the technical support of the United Nations Population Fund (UNFPA) and in cooperation with numerous national and regional stakeholders to collectively strengthen policy instruments and contribute to more effective prevention of sex selection. The Global Programme against GBSS recently entered its second phase with funding by the Norwegian Agency for Development Cooperation.

### Policy Instruments

A variety of public policies have been implemented to address GBSS. These include legal bans, conditional cash transfers, advocacy, and awareness-raising campaigns. GBSS has been a particularly complex or ‘wicked’ problem to target because of its multidimensional scope. Here we want to focus on three major dimensions, namely technology, social norms around son

preference, and fertility behavior, which are closely aligned to the three drivers of GBSS (Guilmoto, 2009). As we will see, these three dimensions are particularly challenging to tackle, each in its own right, and especially in combination with each other. This complexity may explain why we are still lacking major breakthroughs in successfully tackling GBSS.

The first dimension refers to policy instruments targeting technology. The aim is to “tame” technology by introducing bans on sex selection, sex determination, and its advertisement. Most countries have commitments embedded in their constitutions to protect people from discrimination on the basis of sex and gender. In addition, governments have revised and altered medical laws and introduced new provisions to prevent doctors from practicing sex selection for non-medical reasons. Governments have faced multiple challenges with enforcing these legal bans, mainly for a lack of effective oversight and enforcement mechanisms. This becomes especially problematic when the same services are also used legally (for medical reasons) and desirable outcomes (e.g., monitoring of pregnancy). India and China have shown particular commitment to controlling the technology side of sex selection. Both countries rolled out strict controls over ultrasound usage and undercover operations to expose offenders. For some time, India tried the “silent observer” model in parts of the country. In this model, the sonography machines of a whole district were connected to a main server to keep tabs on prenatal sex selection. District officials had difficulties in processing and interpreting these medical images, and concern over privacy matters led to its abolishment. Since reproductive technologies are advancing rapidly, medical staff can detect the fetal sex at ever-earlier stages and have many ways to discretely reveal it to their clients. This has posed further challenges to law enforcement and has resulted in vanishingly few doctors who are actually sanctioned or fined for misconduct.

The second dimension refers to social norm change. Social norms can be defined as

*“informal, mostly unwritten, rules that define acceptable, appropriate, and obligatory actions in a given group or society”* (Cislaghi & Heise, 2018: 2). Different policies have been put into place to alter social norms around the value of sons and daughters. Popular policy instruments have been advocacy, awareness-raising, and media campaigns to raise the value of girls and promote gender equity. While similar campaigns have been launched, the messaging differed according to the socio-cultural and political contexts of the countries. For example, South Korean campaigns included pro-life<sup>4</sup> messages surrounding fetal rights, which are recognized in the Korean constitution. Meanwhile, campaigns in Vietnam stressed patriotism and people’s obligation to sacrifice individual aspirations for the greater public good (“Say no to sex selection, for the sake of Vietnam”). Besides awareness raising, larger gender reforms have been introduced which intersect with social norm change as they seek to strengthen gender equality. These larger reforms are linked to equal inheritance, name transition, access to property, and educational and economic opportunities. These legal reforms are vital to counter gender discrimination and protect women’s rights. However, social norms and particularly gender norms are difficult to change because by definition they are unwritten rules that frequently bypass legislation. Son preference is deeply rooted in kinship systems, values, and traditions. Policies need to be culturally attuned to be effective (Bicchieri, 2017). However, cultural attunement of interventions can also result in perverse effects and end up reinforcing existing gender biases (Rahm, 2019; Singh, 2013). Hence, “sticky” social norms have quite often proven resilient to policy reforms.

The third dimension refers to policy instruments targeting fertility behavior. Government-enforced family size restrictions lower the likelihood of conceiving the desired son naturally and therefore may compound

already established gender biases. Relaxing fertility restrictions therefore eases the pressure couples feel to sex select. Fertility regulation and relaxation has been widely discussed as a means to treat prenatal sex selection (WHO, 2011). Yet, a voluntary trend towards reduced family sizes can be observed, which indicates that couples prefer to have fewer children also in the absence of fertility control measures. Furthermore, policymakers have tried to nudge people into specific reproductive and fertility behaviors by offering them financial incentives. Conditional cash transfers (CCTs) have been rolled out, for example in China and India, to encourage female births and ensure their subsequent well-being and survival. Conditions are often linked to birth registration, vaccination, health, nutrition, school enrollment, and late marriage or family planning practices. CCTs have proven to be powerful means for poorer families, especially in Latin America, but, whether or not these incentives reduce sex selection in Asia remains contested and doubtful (Sekher & Ram, 2015).

In sum, policy instruments have aimed at taming technology, changing gender norms or easing fertility pressures by relaxing or incentivizing births. All three dimensions involve challenges and uncertainties. Taken together, they make GBSS a particularly complex target. Respective policy instruments co-exist and compete in a complex and dynamic social, political, and economic landscape. No single approach seems universally effective. However, we can hypothesize that trying to cure sex selection through technology or fertility regulation is unlikely to succeed without addressing son preference. Son preference is seen as the primary driver behind the phenomenon (UNFPA, 2012) and the other two as secondary, due to their contingent dependence on the underlying preference for sons. GBSS makes for an especially difficult policy “target” as new technologies emerge, norms shift, and fertility behaviors change. In such complex and evolving situation, it is important for policymakers to carefully monitor and evaluate policy impact in order to track policy outcomes and calibrate future policy design.

<sup>4</sup> For example, one 1997 poster campaign read, *“I want to be born with the blessing of mama and papa. I am frightened of abortion for being a girl. Please protect my life”* (Rahm, 2020: 118).

## Policy Impact

Despite over 30 years of policy response, surprisingly little is known about policy efficacy to cure sex selection and sex imbalances at birth. While there has been significant international interest and funding for identifying best practices and lessons learned (European Union, 2015; WHO, 2011), in effect, very few rigorous policy assessments have been carried out. Nandi and Deolalikar (2013) for example have shown, through a difference-in-difference analysis using 1991 and 2001 census data, that the early sex selection ban in India prevented a further worsening of the situation. However, these results seem less convincing given the fact that the ban was only instituted years later, in a 2003 amendment resulting in the Pre-Conception Pre-Natal Diagnostic Techniques (PC-PNDT) Act. This amendment was a response to civil pressure against the lack of law enforcement. Further studies assessed the impact of district-level interventions through a formal comparison between two similar Indian districts in Haryana (Jejeebhoy et al., 2015). In these cases, SRB improvements were not linked to enforcement of the PC-PNDT Act, but rather to community mobilization among district authorities, NGOs, and religious leaders. Moreover, scholars have assessed the role of conditional cash transfers in heavily treated districts of Haryana and Punjab (Nanda et al., 2014; Sinha & Yoong, 2009), but the results are mixed and modest.

These impact studies have been mainly carried out in India, where sex ratios remain significantly skewed after over three decades of concerted policy efforts. However, the limited information we have on how policy plays out in different parts of the world is similarly modest. Chinese authorities, for example, have conducted regional policy assessments in their 2016–2018 GBSS project, claiming policy success in six intervention counties. Since the survey data and full reports are not openly accessible, it is difficult to verify these results, but we can attest that the SRB decline in China already started a decade before the recent GBSS project was carried out (see

Fig. 33.2). Armenian authorities conducted a pre- and post-intervention survey showing some changes in awareness, but, in the absence of control areas, these results cannot be causally linked to policy interventions. Meanwhile, Vietnamese authorities were the first to conduct a formal baseline and endpoint survey between 2012 and 2016 to assess GBSS interventions at a regional level. However, the study was overshadowed by methodological and administrative shortcomings. In this case, the control area also became intervention area and the baseline differed from the endpoint survey. Both of these shortcomings made the results questionable. Most noteworthy, only two countries witnessed a normalization of their sex ratios to date: South Korea and possibly Georgia. While South Korea introduced targeted actions against GBSS, Georgia did not.

Our poor understanding of policy impact can also be explained by the fact that many policies and interventions have been implemented promptly, but without any proper provisions for Monitoring and Evaluation (M & E).<sup>5</sup> Key stakeholders are often unfamiliar with M & E standards or lack funding, political will, and/or time to carry them out. Basic data such as birth registration statistics are often unavailable and the number of births may be too small in many of the affected countries or regions to be statistically significant. Without the necessary technical expertise to measure and interpret demographic trends and policy impacts, many observers (including policymakers and journalists) have been quick to jump to conclusions. SRB improvements are interpreted as a sign of policy success, and SRB deterioration as policy failure. This assumes that demographic changes are a direct result of policy interventions. Proper M & E verification would require more carefully controlling for external factors. Experimental and/or quasi-experimental designs are usually needed to overcome the attribution problem and yield accurate estimates of policy impact on a variable of interest (e.g., SRB). However, this is

<sup>5</sup> See Chap. 24: *Measuring the Effectiveness, Efficiency, and Impact of Population Policies* of this Handbook (Tarsilla, [this volume](#)).

not easy when evaluating large scale, collaborative, and multi-stakeholder interventions that are often coupled and mutually reinforcing (Stachowiak et al., 2020).

Recognizing these limitations, the Global Programme to Prevent Son Preference and Undervaluing of Girls (2016–2020) has made several contributions to filling the existing knowledge gaps. Global and national guidelines for M & E have been developed and country-level policy impact studies have been carried out in collaboration with national and international research institutes. Governments are encouraged to prioritize the M & E of both the policies and SRB trends, to strengthen data quality and to harmonize data collection. The availability of quality data, however, differs greatly from country to country. Most affected countries can offer reliable census data that can be used for SRB related computations, but only after long delays. This information is often not timely enough to inform decision-making. Many countries lack a reliable civil registration system that would allow for monitoring annual SRB changes. Thanks to international cooperation, more attention is being given to the subject and data availability has significantly improved over the past two decades. This new data availability has also allowed to looking at the unintended side effects of public policies.

### Unintended Side Effects

Public policies have been frequently promoted as a remedy to cure sex selection; however, as we have seen, their impact is poorly understood. Interventions are nested in a policy landscape with multiple competing goals, and can produce a number of unintended side effects or sleeper effects, which only become visible down the road. Here we want to examine some of these unintended side effects by drawing from four specific case studies. In each case studies, population policies produced undesired effects on demographic outcomes and/or gender relations

by being overly “powerful,” “proactive,” “paternalistic,” and “popular.”

### Side Effect 1: Too Powerful? Fertility Control Policies Give Rise to Sex Imbalances at Birth

Traditionally, the major emphasis in population policy has been to control population growth through family planning measures (May, 2012). In the twentieth century, this Neo-Malthusian drive contributed to sustained decreases in fertility rates in developing countries. Population control was seen as a driver for social and economic development (Bennett, 1983). For example, India avoided over 168 million births between the 1950s and 1990s (Saxena, 1996). In China, an estimated 400 million births were avoided according to its government, even if this figure and the contribution of the One-Child policy remains heavily debated (Goodkind, 2017; Zhao & Zhang, 2018). Other Asian countries introduced similar, yet less draconian, policies to reduce population growth. At the same time, international agencies such as the International Planned Parenthood Federation (IPPF) or the Population Council were created, providing financial and technical support for family planning to avoid what was thought to be a looming “population crisis” (Ehrlich, 1975). Ehrlich anticipated “*if a simple method could be found to guarantee that first-born children were male, then population control problems in many areas would be somewhat eased . . . couples with only female children, keep trying in hope of a son*” (Ehrlich, cited in Rae, 2018). Indeed, as fertility levels were coming down and couples gained improved access to prenatal care (including ultrasound and abortion services), they used these novel capabilities to deselect daughters. Scholars have therefore suggested that the use of biopolitics in population control (Eklund & Purewal, 2017) increased family pressures to conceive the desired son with fewer births and therefore gave rise to sex imbalances (Croll, 2000; Guilmoto, 2009).

### **Side Effect 2: Too Proactive? Vietnam’s Prompt Policy Response Triggered the Onset of Sex Selection**

Vietnam was a latecomer to skewed sex ratios. Its belated but rapid rise in SRB started in early 2000s. A recent breakpoint analysis of SRB trends (see Fig. 33.3) showed that the sex ratio at birth started to rise at the same time a corrective policy was introduced. The 2003 Population Ordinance (soon to be replaced by the Population Law) is the highest-level population legislation issued in Vietnam to date. It granted new liberties to Vietnamese couples in terms of number and spacing of children, but it also clearly prohibited sex selection. Given the simultaneity of policy and rising SRB, it has been suggested that the Population Ordinance triggered the onset of sex imbalances in Vietnam (Guilmoto et al., 2018). This hypothesis is supported by the second spike in skewed SRB with the introduction of the Gender Equity Law, which contained additional sanctions against GBSS. The trend becomes even more visible by tracking the SRB of sonless families (those at high risk for resorting to prenatal sex selection), illustrated by the dotted line in Fig. 33.3. The combination of these factors suggests that the sex selection ban had the perverse and unintended side effect of triggering the SRB onset in Vietnam. The fact that the Population Ordinance was highly publicized seems to have set into motion a sudden change in people’s reproductive choices. Such unintended side effects are by no means limited to Vietnam. Other countries show similar trends of rising SRBs after important abortion policy changes (e.g., Albania and Nepal) (Frost et al., 2013; Guilmoto et al., 2018).

### **Side Effect 3: Too Paternalistic? Political Masculinities<sup>6</sup> in India Hinder Efforts to Counter Sex Selection**

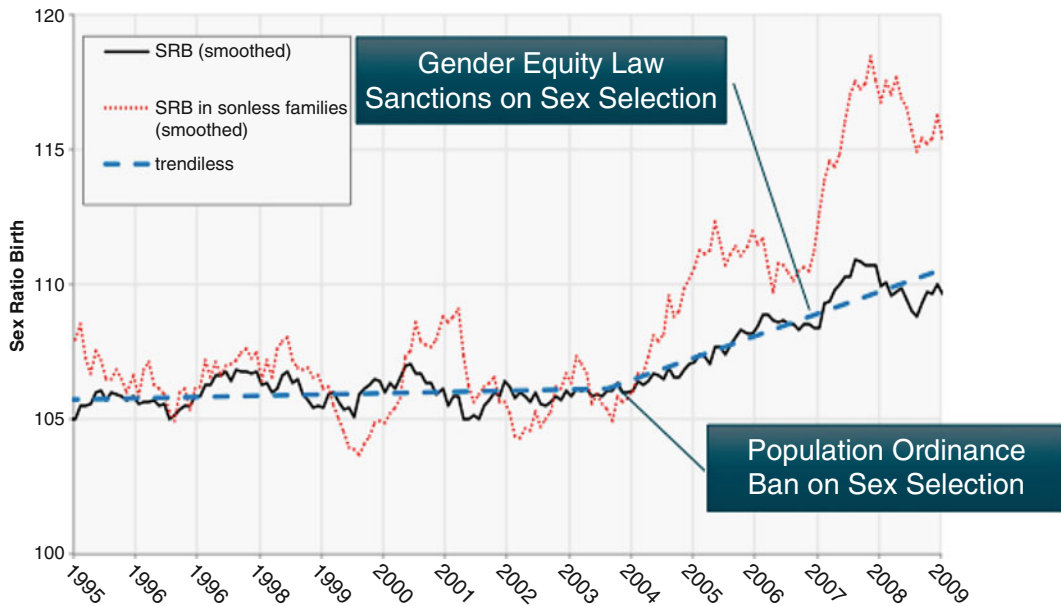
Sometimes the very laws designed to address sex selection and son preference can end up reinforcing existing gender biases (Rahm, 2019;

Singh, 2013). This can be seen in the Indian case where anti-sex selection policies have had several unintended side effects by either infringing on women’s reproductive rights or reproducing gender biases and unequal power structures. One case stands out: A Punjabi district became known for the “Nawanshahr Model,” where a rigorous district-level intervention was adopted to stop sex selection between 2005 and 2007. Initially, the intervention was praised for its efficacy and received nationwide attention. Quantitative analyses comparing SRB trends in the treated district versus its surrounding districts and the state of Punjab showed that the “Nawanshahr Model” was successful in lowering SRB. Qualitative analyses showed that this positive result was achieved through a number of factors including exceptional leadership, fear of the law, and community mobilization (Rahm, 2019). However, this policy push also generated the serious unintended side effect of violating the reproductive and privacy rights of women. Excessive state dominance and aggression were employed to the degree characterized as “terror of the law.” The aggressive state measures depended heavily on dominance and subordination techniques employed by politically powerful men on women seeking abortions. In the end, the Nawanshahr model showed that a strong top-down paternalistic approach to addressing sex selection can be effective in terms of reducing sex ratios, but only temporarily and at the cost of reinforcing existing gender biases and undermining gender equity.

### **Side Effect 4: Too Popular? South Korea’s “Success” Story Gets Adopted in the Absence of Proven Policy Efficacy**

South Korea was one of the first countries where sex ratios at birth returned to normalcy. As a result, the South Korean model has been frequently promoted and emulated. Many observers, scholars, and international agencies have portrayed South Korea as a policy “success story” in curbing SRB (Conly, 2016; WHO, 2011). As a consequence, a common narrative has emerged in which the South Korean SRB declined because the Korean government

<sup>6</sup> By political masculinities, we refer to both individual and institutionalized expressions of masculinity; see Rahm, 2019.



**Fig. 33.3** The rise in the SRB in Vietnam, 1995–2009. (Source: Guilmoto et al., 2018; Policies added)

introduced early and effective policy measures. However, many of South Korea’s anti-sex selection policies were introduced ‘too little and too late’ to have had an impact. Rahm (2020) showed that public policies did not lead to declining SRB, but rather other external factors explained this decline. Moreover, several official awareness-raising campaigns in South Korea promoted pro-life/anti-abortion messages, a delicate aspect, which is omitted when speaking out for the emulation of the Korean case. The Korean “success” story has traveled and inspired interventions in many countries, from Armenia to Vietnam. While in this case, the Korean model itself did not have the intended effect (e.g., lowering SRB), it had the unintended side effect of being diffused and transferred transnationally to other affected countries in the absence of proven policy efficacy or transferability.

At the planning and policy design stage, the costs and benefits of new reproductive technologies are difficult to anticipate or to quantify. Our four case studies show that the same is true for policies. Not only new technologies can

have unforeseen side effects. Policies themselves can be seen as political and social technologies that can take on a life of their own when introduced into complex socioeconomic contexts. In the first two cases, we see how skewed sex ratios actually increased as a consequence of population policies. Both the fertility control policies of the twentieth century and the Vietnamese introduction of anti-sex selection policy had direct consequences that resulted in increased sex selection and large-scale SRB imbalances. In the Indian case, the policy implementation reinforced the gender biases the policy was trying to counteract. Ultimately, sex ratios did improve, but these changes were not sustainable and came at the expense of infringing women’s privacy and their sexual and reproductive rights. The fourth case study stands out, not because the policy was particularly effective, but because the narrative of effective policy was so successful that it spread in the absence of actual evidence. This is highly problematic, because limited resources are put into policies and programs without actual evidence of policy efficacy and transferability. This

last issue points to deficiencies of a much larger trend of transnational knowledge and policy sharing where ‘old policy ideas die hard’.<sup>7</sup>

These four case studies also show how policy and technology outcomes differ drastically from one population to another. The complex, path dependent ways that biotechnologies and policies play out in different environments implies that there is no ‘one size fits all’ solution for them. In the absence of such a panacea, the hard work of tracking how actual technologies and policies interact at different levels and within different contexts falls to professionals who know how to effectively monitor and evaluate technological and policy outcomes. This is therefore a call for population scientists to carefully monitor and assess techno-demographic trends and their bioethical implications.

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### Population-Level Bioethics: A Call for Demographers

Where do babies come from? This simple question has become increasingly complex in view of new technological possibilities. New technologies have opened up vast landscapes of choice and opportunity, but the consequences of these new choices play out over generations. Policymakers are not only entrusted with safeguarding individual rights but also the larger social well-being. As new biotechnologies increasingly impact individual and population level issues, policymakers need to be able to rely on scientific expertise to orient and navigate in these unknown waters.

Up to now, the bioethical debate has been dominated by concerns over individual rights like privacy, informed consent, patients’ rights, and the code of conduct of medical professionals. This has resulted in a bioethical field largely segmented into niches that are concerned with defending the rights and interests of individuals, often those on the ‘margins’ (e.g., single parent, same-sex couples, etc.) while frequently

overlooking the consequences of technology on the ‘masses.’ The population-level ethical issues are usually invisible at this individual level (Brock & Wickler, 2007), but become highly relevant with the diffusion of innovations (Rogers, 2003) affecting large segments of the population.

A gender lens into bioethics is of particular importance, because innovations can have adverse gender effects, which undermine efforts towards gender equality and ultimately limit the possibilities for advancing the health and well-being of *all* people. Reproductive technologies are, by default, intimately related to gender. Much is at stake, both personally and publicly, when reproductive technologies are used asymmetrically to benefit males over females. The choice to screen and select for XY chromosomes, and disregard XX chromosomes has led to unprecedented demographic imbalances that come with dire social, economic, and political consequences.

Gender-biased sex selection is a powerful example of these complex dynamics in the field of bioethics and gender. Fundamental tensions arise when reproductive autonomy is used to discriminate against certain children with certain traits (in this case, females). These tensions have negative implications for the society at large now and for decades to come. In short, what seems right on an individual level in terms of safeguarding women’s reproductive choices is fundamentally wrong on a population level with 4% of the global female population missing. The case of GBSS shows how difficult it is to develop and implement corrective policies because the remedies themselves can create their own challenges and gender-related backlashes. This was evident not only at an individual level, in terms of limiting reproductive and privacy rights, but especially at a population level, in terms of triggering the onset of sex selection. We saw that public policies aimed at improving the situation are implemented into a complex web of kinship, gender, market dynamics, and have themselves had unintended consequences or even perverse effects on gender norms and sex imbalances.

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<sup>7</sup> Peters and Nagel (2020: 1) in their new book coin these failed persisting policy ideas as “*zombie ideas*”.



Bioethics, gender, and demography issues need to be integrated to provide ethical orientation for the tradeoffs and dilemmas that will increasingly appear as both the technological and policy choice landscapes become more sophisticated. Up to now, sex-selective abortion remains the most common method of GBSS practiced in Asia. However, the use of assisted reproductive technologies is rapidly increasing, especially as more couples postpone marriage and childbearing and thus exacerbate their fertility problems. Demography will play an important role in informing bioethics and has to be vigilant and informed, especially in speaking up for the faceless and nameless groups whose interests are in danger of being overlooked in favor of individual rights.

This is a call for demographers and social scientists to address the population-level bioethical dilemmas by revealing the macro-level implications of technology. Ironically, demographers have long turned a blind eye to the large-scale implications of biotech. In fact, it was an economist and not a demographer that first pointed to “over 100 million missing women” (Sen, 1990). In recent years, demographers have made substantial contributions to conceptualizing ethical dilemmas such as sex selection and other harmful practices. They are indeed well positioned to enrich the bioethical debate by further exploring the backlashes of technology on gender and population at large. Population-level bioethics has only recently started to generate interest and there is room for growth. A new Oxford University Press series was launched in 2013 to provide in-depth analysis on population-level bioethical matters. These issues around health and harm, benefit and burden literally concern us all and their exploration will provide the foundation for future population policies.

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## References

- Beauchamp, T. L., & Childress, J. F. (2001). *Principles of biomedical ethics* (5th ed.). Oxford University Press.
- Becker, G. (2007, December 2). *Is sex selection of births undesirable?* The Becker-Posner Blog. See <http://www.becker-posner-blog.com/2007/02/is-sex-selection-of-births-undesirable-becker.html>
- Bennett, N. G. (Ed.). (1983). *Sex selection of children*. Academic.
- Bhatia, R. (2018). *Gender before birth: Sex selection in a transnational context* (Feminist Technosciences). University of Washington Press.
- Bicchieri, C. (2017). *Norms in the wild: How to diagnose, measure, and change social norms*. Oxford University Press.
- Bien, C. H., Cai, Y., Emch, M. E., Parish, W., & Tucker, J. D. (2013). High adult sex ratios and risky sexual behaviors: A systematic review. *PLoS ONE*. (Edit. by D. Harper), 8(8), e71580. <https://doi.org/10.1371/journal.pone.0071580>
- Bongaarts, J., & Guilimoto, C. Z. (2015). How many more missing women? Excess female mortality and prenatal sex selection, 1970-2050. *Population and Development Review*, 41(2), 241–269.
- Brock, D. W., & Wickler, D. (2007). Population-level bioethics: Mapping a new agenda. In A. Dawson & M. F. Verweij (Eds.), *Ethics, prevention, and public health. Issues in biomedical ethics* (pp. 78–94). Clarendon Press & Oxford University Press.
- Buchanan, A., Brock, D. W., Daniels, N., & Wikler, D. (2000). *From chance to choice: Genetics and justice*. Cambridge University Press; See <http://ebooks.cambridge.org/ref/id/CBO9780511806940>
- Bumgarner, A. (2007). A right to choose?: Sex selection in the international context. *Duke Journal of Gender Law & Policy*, 14, 1289–1310.
- Calhaz-Jorge, C., De Geyter, C. H., Kupka, M. S., Wyns, C., Mocanu, E., Motrenko, T., Scaravelli, G., Smeenk, J., Vidakovic, S., & Goossens, V. (2020). Survey on ART and IUI: Legislation, regulation, funding and registries in European countries. *Human Reproduction Open*, 2020(1), hoz044. <https://doi.org/10.1093/hropen/hoz044>
- Callahan, D. (2018). *Bioethics and policy – A history*. The Hastings Center; See <https://www.thehastingscenter.org/briefingbook/bioethics-and-policy-a-history/>
- Cambridge Dictionary. (2020). Bioethics. In *Cambridge advanced learner's dictionary & thesaurus*. Cambridge University Press; See <https://dictionary.cambridge.org/dictionary/english/bioethics>
- Casado, M., & López Baroni, M. J. (2020). *Handbook of secular bioethics (I). Key issues*. Universitat de Barcelona.
- Chahnazarian, A. (1988). Determinants of the sex ratio at birth: Review of recent literature. *Biodemography and Social Biology*, 35(3–4), 214–235.
- Chao, F., Gerland, P., Cook, A. R., & Alkema, L. (2019). Systematic assessment of the sex ratio at birth for all countries and estimation of National Imbalances and regional reference levels. *Proceedings of the National Academy of Sciences*, 116(19), 9303–9311.
- Chao, F., Gerland, P., Cook, A. R., Guilimoto, C. Z., & Alkema, L. (2021). Projecting sex imbalances at birth at global, regional and national levels from 2021 to

- 2100: Scenario-based Bayesian probabilistic projections of the sex ratio at birth and missing female births based on 3.26 billion birth records. *BMJ Global Health*, 6(8), e005516. <https://doi.org/10.1136/bmjgh-2021-005516>
- Cislaghi, B., & Heise, L. (2018). Theory and practice of social norms interventions: Eight common pitfalls. *Globalization and Health*, 14(1), 83. <https://doi.org/10.1186/s12992-018-0398-x>
- Cleland, J. (this volume). Chapter 27: The contraceptive revolution. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Coale, A. J. (1991). Excess female mortality and the balance of the sexes in the population: An estimate of the number of 'missing females'. *Population and Development Review*, 17(3), 517–523.
- Conly, S. (2016). *One child: Do we have a right to more?* Oxford University Press.
- Council of Europe. (1997). *Convention on human rights and biomedicine*. Council of Europe. See <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=090000168007cf98>
- Crane, B., & Maistrellis, E. A. (this volume). Chapter 28: The role of abortion in population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Croll, E. (2000). *Endangered daughters: Discrimination and development in Asia*. Routledge.
- Daar, J., Benward, J., Collins, L. R., Davis, J. B., Davis, O., Francis, L., Gates, E., et al. (2018). Disclosure of sex when incidentally revealed as part of preimplantation genetic testing (PGT): An ethics committee opinion. *Fertility and Sterility*, 110(4), 625–627.
- Daley, B. (2014). *Oversold prenatal tests spur some to choose abortions*. Harvard Medical School News & Research. See <https://hms.harvard.edu/news/oversold-prenatal-tests-spur-some-choose-abortions>
- Das Gupta, M. (2015). 'Missing girls' in the South Caucasus countries: Trends, possible causes, and policy options (Policy research working paper WPS7236). World Bank Group.
- Davin, D. (2007). Marriage migration in China and East Asia. *Journal of Contemporary China*, 16(50), 83–95.
- De Jong, A., Dondorp, W. J., Die-Smulders, C. E. M., de Frints, S. G. M., & de Wert, G. M. W. R. (2010). Non-invasive prenatal testing: Ethical issues explored. *European Journal of Human Genetics*, 18(3), 272–277.
- Dondorp, W., De Wert, G., Pennings, G., Shenfield, F., Devroey, P., Tarlatzis, B., Barri, P., & Diedrich, K. (2013). ESHRE task force on ethics and law 20: Sex selection for non-medical reasons. *Human Reproduction*, 28(6), 1448–1454.
- Drèze, J., & Sen, A. (1990). *Hunger and public action. Wider studies in development economics*. Oxford University Press.
- Dubuc, S., & Coleman, D. (2007). An increase in the sex ratio of births to India-born mothers in England and Wales: Evidence for sex-selective abortion. *Population and Development Review*, 33(2), 383–400.
- Duthé, G., Meslé, F., Vallin, J., Badurashvili, I., & Kuyumjian, K. (2012). High sex ratios at birth in the Caucasus: Modern technology to satisfy old desires. *Population and Development Review*, 38(3), 487–501.
- Ehrlich, P. R. (1975). *The population bomb* (Revised ed.). River City Press.
- Eklund, L., & Purewal, N. (2017). The bio-politics of population control and sex-selective abortion in China and India. *Feminism & Psychology*, 27(1), 34–55.
- European Union. (2015). *Action document for the global Programme to prevent son preference and gender-biased sex selection*. European Union. See [https://ec.europa.eu/europeaid/file/48549/download\\_en?token=hyseRA9W](https://ec.europa.eu/europeaid/file/48549/download_en?token=hyseRA9W)
- Frost, M. D., Puri, M., & Hinde, P. R. A. (2013). Falling sex ratios and emerging evidence of sex-selective abortion in Nepal: Evidence from nationally representative survey data. *British Medical Journal Open*, 3, e002612. <https://doi.org/10.1136/bmjopen-2013-002612>
- Gammeltoft, T., & Nguyễn, H. T. T. (2007). The modification of obstetric ultrasound scanning in Hanoi, Viet Nam. *Reproductive Health Matters*, 15(29), 163–171.
- Goodkind, D. (2017). The astonishing population averted by China's birth restrictions: Estimates, nightmares, and reprogrammed ambitions. *Demography*, 54(4), 1375–1400.
- Guilmoto, C. Z. (2009). The sex ratio transition in Asia. *Population and Development Review*, 35(3), 519–549.
- Guilmoto, C. Z. (2015). The masculinization of births. Overview and current knowledge. *Population*, 70(2), 201–264.
- Guilmoto, C. Z., & Duthé, G. (2013). Masculinization of births in Eastern Europe. *Population & Societies*, 506, 1–4.
- Guilmoto, C. Z., Dudwick, N., Gjonça, A., & Rahm, L. (2018). How do demographic trends change? The onset of birth masculinization in Albania, Georgia, and Vietnam 1990–2005. *Population and Development Review*, 44(1), 37–61.
- Guilmoto, C. Z., Chao, F., & Kulkarni, P. M. (2020). On the estimation of female births missing due to prenatal sex selection. *Population Studies*, 74(2), 283–289. <https://doi.org/10.1080/00324728.2020.1762912>
- Guo, Z., Das Gupta, M., & Li, S. (2016). 'Missing girls' in China and India: Trends and policy challenges. *Asian Population Studies*, 12(2), 135–155.
- Gupta, J. A. (2000). *New reproductive technologies, Women's health and autonomy: Freedom or dependency* (Indo-Dutch studies on development alternatives 25). Sage Publications.
- Hakim, C. (2015). The male sexual deficit: A social fact of the 21st century. *International Sociology*, 30(3), 314–335. <https://doi.org/10.1177/0268580915569090>
- Hesketh, T., & Xing, Z. W. (2006). Abnormal sex ratios in human populations: Causes and consequences. *Proceedings of the National Academy of Sciences*, 103(36), 13271–13275.

- Hudson, V. M., & Den Boer, A. (2004). *Bare branches: The security implications of Asia's surplus male population* (BCSIA studies in international security). MIT Press.
- Jeebhoy, S. J., Acharya, R., Basu, S., & Francis Zavier, A. J. (2015). *Addressing gender-biased sex selection in Haryana, India: Promising approaches*. The Population Council.
- Jha, P., Kesler, M. A., Kumar, R., Ram, F., Ram, U., Aleksandrowicz, L., Bassani, D. G., Chandra, S., & Banthia, J. K. (2011). Trends in selective abortions of girls in India: Analysis of nationally representative birth histories from 1990 to 2005 and census data from 1991 to 2011. *The Lancet*, 377(9781), 1921–1928.
- Kaur, R. (2012). Marriage and migration citizenship and marital experience in cross-border marriages between Uttar Pradesh, West Bengal and Bangladesh. *Economic and Political Weekly*, 47(43), 78–89.
- Kaye, B., & Jittapong, K. (2014, July 15). In Thailand, Baby Gender Selection Loophole Draws China, HK Women to IVF Clinics. *Reuters*. See <https://www.reuters.com/article/us-thailand-ivf-gender-selection/in-thailand-baby-gender-selection-loophole-draws-china-hk-women-to-ivf-clinics-idUSKBN0FK2H020140715>
- KIHASA and UNFPA. (1996). *Sex preference for children and gender discrimination in Asia*. Korea Institute for Health and Social Affairs (KIHASA).
- Kippen, R., Gray, E., & Evans, A. (2018). High and growing disapproval of sex-selection Technology in Australia. *Reproductive Health*, 15(1), 134. <https://doi.org/10.1186/s12978-018-0577-5>
- Klasen, S., & Wink, C. (2003). 'Missing women': Revisiting the debate. *Feminist Economics*, 9(2–3), 263–299.
- Klitzman, R. (2019). *Designing babies: How technology is changing the ways we create children*. Oxford University Press.
- Kumar, D. (1985). Should one be free to choose the sex of One's child? *Journal of Applied Philosophy*, 2(2), 197–204.
- Le Bach, D., Bélanger, D., & Khuat, T. H. (2007). Transnational Migration, Marriage and Trafficking at the China-Vietnam Border. In I. Attané & C. Z. Guilmoto (Eds.), *Watering the Neighbour's garden: The growing demographic female deficit in Asia* (pp. 393–425). CICRED.
- Lee, H. K. (2013). Marriage migration. In I. Ness (Ed.), *The encyclopedia of global human migration*. Blackwell Publishing Ltd.
- Leiter, G. (2014). What Israeli policy can teach us about elective sex selection. *Israel Journal of Health Policy Research*, 3, 42.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- Nanda, P., Datta, N., & Das, P. (2014). *Impact of conditional cash transfers on girls' education*. International Center for Research on Women.
- Nandi, A., & Deolalikar, A. B. (2013). Does a legal ban on sex-selective abortions improve child sex ratios? Evidence from a policy change in India. *Journal of Development Economics*, 103, 216–228.
- Ossareh, T. (2017). Would you like blue eyes with that? A fundamental right to genetic modification of embryos. *Columbia Law Review*, 117(3), 729–766.
- PACE. (2011). *Prenatal sex selection. Resolution 1829*. Parliamentary Assembly Council of Europe. See <http://assembly.coe.int/nw/xml/XRef/Xref-XML2HTML-en.asp?fileid=18020&lang=EN>
- Papadopoulou, A. (2013). *Gendercide: The missing women?* (2012/2273 (INI)). European Parliament, Committee on Women's Rights and Gender Equality. See <https://www.europarl.europa.eu/sides/getDoc.do?reference=A7-2013-0245&type=REPORT&language=EN&redirect>
- Peters, B. G., & Nagel, M. L. (2020). *Zombie ideas: Why failed policy ideas persist*. Cambridge University Press.
- Rae, S. (2018). *Moral choices: An introduction to ethics* (4th ed.). Zondervan.
- Rahm, L. (2017). La Convergence des Politiques de Lutte Contre la Sélection Sexuelle Prénatale : Corée du Sud, Inde et Vietnam. *Critique Internationale*, 4(77), 11–31.
- Rahm, L. (2019). Protect, track, emancipate: The role of political masculinities in India's fight against sex selection. *Men and Masculinities*, 22(3), 529–562. <https://doi.org/10.1177/1097184X18768873>
- Rahm, L. (2020). Gender-biased sex selection in South Korea, India and Vietnam: Assessing the influence of public policy. In *Demographic transformation and socio-economic development*. Springer.
- Rapp, R. (2017). The egg imaginary. In A. Wahlberg & T. Gammeltoft (Eds.), *Selective reproduction in the 21st century* (pp. v–viii). Springer.
- Roberts, J. C. (2002). Customizing conception: A survey of preimplantation genetic diagnosis and the resulting social, ethical, and legal dilemmas. *Duke Law & Technology Review*, 1(1), 1–21. PMID: 15709286.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Saxena, B. N. (1996). Reproductive health in India. *Advances in Contraception*, 12(4), 265–270.
- Sekher, T. V., & Ram, F. (2015). *Conditional cash transfers for girls in India: Assessment of a girl child promotion scheme from beneficiary perspective*. International Institute for Population Sciences (IIPS) & United Nations Population Fund (UNFPA).
- Sen, A. (1990, December 20). *More than 100 million women are missing*. The New York Review of Books.
- Sen, A. (2003). Missing women: Revisited. *British Medical Journal*, 327(7427), 1297–1298.
- Shijith, V. P., & Sekher, T. V. (2017). 'Unwanted' is my name: Culture, patriarchy and gender bias surrounding the Nakusa girls of Maharashtra. *Sociological Bulletin*, 66(1), 58–74.
- Singh, K. (2013). *Laws and son preference in India. A reality check*. United Nations Population Fund India.

- Sinha, N., & Yoong, J. (2009). *Long-term financial incentives and Investment in Daughters: Evidence from conditional cash transfers in North India* (Policy research working papers). World Bank Group.
- Sleeboom-Faulkner, M. (Ed.). (2010). *Frameworks of choice: Predictive and genetic testing in Asia*. Amsterdam University Press.
- South, S. J., & Trent, K. (2010). Imbalanced sex ratios, Men's sexual behavior, and risk of sexually transmitted infection in China. *Journal of Health and Social Behavior, 51*(4), 376–390.
- Srinivasan, S., & Li, S. (2018). *Scarce women and surplus men in China and India: Macro demographics versus local dynamics*. Springer.
- Stachowiak, S., Lynn, J., & Akey, T. (2020). Finding the impact: Methods for assessing the contribution of collective impact to systems and population change in a multi-site study. *New Directions for Evaluation, 165*, 29–44. <https://doi.org/10.1002/ev.20398>
- Steinbock, B. (2002). Sex selection: Not obviously wrong. *The Hastings Center Report, 32*(1), 23–28.
- Tarsilla, M. (this volume). Chapter 24: Measuring the effectiveness, efficiency, and impact of population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- UNFPA. (2012). *Sex imbalances at birth: Current trends, consequences and policy implications*. United Nations Population Fund, Asia and the Pacific Regional Office.
- United Nations. (1995). *International conference on population and development (ICPD) Programme of action*. United Nations.
- Urdal, H. (2006). A clash of generations? Youth bulges and political violence. *International Studies Quarterly, 50*(3), 607–629.
- Verma, I. C., Joseph, R., Verma, K., Buckshee, K., & Ghai, O. P. (1975). Prenatal diagnosis of genetic disorders. *Indian Pediatrics, 12*(5), 381–386.
- Vishwakarma, M., Shekhar, C., & Yadav, A. (2019). Variations in marriage squeeze by region, religion, and caste in India. *Journal of Comparative Family Studies, 50*(4), 313–330.
- Wahlberg, A., & Gammeltoft, T. (Eds.). (2017). *Selective reproduction in the 21st century*. Springer.
- Whittaker, A. (2011). Cross-border assisted reproduction Care in Asia: Implications for access, equity and regulations. *Reproductive Health Matters, 19*(37), 107–116.
- WHO. (2011). *Preventing gender-biased sex selection: An interagency statement OHCHR, UNFPA, UNICEF, UN women and WHO*. World Health Organization.
- WHO. (2022). *Abortion care guideline*. World Health Organization.
- Woetzel, J., Madgavkar, A., Ellingrud, K., Labaye, E., Devillard, S., Kutcher, E., Manyika, J., Dobbs, R., & Krishnan, M. (2015). *The power of parity: How advancing Women's equality can add \$12 trillion to global growth*. McKinsey Global Institute.
- Yang, X., Wang, S., & Eklund, L. (2020). Reacting to social discrimination? Men's individual and social risk behaviors in the context of a male marriage squeeze in rural China. *Social Science & Medicine, 246*, 112729. <https://doi.org/10.1016/j.socscimed.2019.112729>
- Zhao, Z., & Zhang, G. (2018). Socioeconomic factors have been the major driving force of China's fertility changes since the mid-1990s. *Demography, 55*(2), 733–742.



Jennifer D. Sciubba and Seongjoon Hwang

## Introduction

Concerns about connections between population and national security have been constant since the beginning of the modern nation-state, but the nature of those concerns has shifted as definitions of “security” itself have evolved to encompass realms beyond a traditional, state-centric view. This chapter engages with those various definitions of security through a discussion of population dynamics, primarily population size, composition, and distribution. It first describes the historical and theoretical foundations scholars have built on as they consider the relationship between population and national security. The chapter then proceeds to examine linkages between population and national security through two angles: demographic implications for sources and dynamics of conflict, and demographic influences on national power. The chapter concludes by discussing areas in which demographics could influence national security studies and policies.

Demography is a useful tool for understanding national security because fertility, mortality, and migration – the three components of population change – are mostly long-term trends and can allow analysts to project the near future with some degree of certainty. The military-age

population of the next decade is in primary school today and the size of cohorts projected to exit the workforce 20 years from now will not change, even if laws conditioning their retirement do. But natural disasters and outbreaks of conflict can force massive population exodus in a matter of weeks or days. To that end, this chapter also engages with the limitations of demographic projections for analyzing security implications. The literature shows that political institutions are one of many factors that magnify or diminish the influence of demographic trends and provides examples of how similar demographic trends can have varying outcomes depending on context.

## Historical and Theoretical Foundations

Even for early states, fundamental differences in demography and geography consumed national security agendas – the side with the most fighters and the best physical position had the advantage. Thus, one focus of demographics and security was differential growth. France was one of the first countries to experience slow population growth, which occurred far earlier than contemporary population declines – in France’s case in the lead up to its defeat in the war of 1870–1871. One French professor, Paul Leroy-Beaulieu, wrote in 1881 that France would lose at continental politics – particularly trying to reclaim the territories of Alsace and Lorraine – in the face

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of a growing Germany, and should turn its attention instead to colonial politics, including the annexation of Tunisia (Teitelbaum & Winter, 1985: 18–19).

As technology improved, concern about demography and geography conditioning battlefield advantage waned, but has remained. Even with satellites and drones, manpower is still necessary for projecting force and for national defense, and as population trends in fertility and mortality change the number of military-age males that could be mobilized, demography becomes firmly an issue of national security. For example, Russian President Vladimir Putin has lamented the country's declining military-age population and what that says about the strength of the Russian state. Leaders also continue to consider how population dynamics affect economic growth, and thus money available for the military, a concern among aging states like the United States, United Kingdom, and Germany, among others, in the twenty-first century.

Demographics and security have often been connected in ways that reflect contemporary issues. During the Cold War, neo-Malthusian fears of overpopulation played into the ideological competition between the U.S. and Soviet Union. With most of the world's population growth projected to occur in developing countries, the U.S. worried that overpopulation would result in political instability and economic stagnation. Poverty would then make countries more susceptible to communism, undermining efforts at containment. The first world was generally concerned about being "out-birthed" by the second and third worlds. This fear found formal expression in the founding of the United Nations Population Fund (UNFPA) in 1969 and the architecture of global family planning in large part initiated by the United States in the 1960s and 1970s. As leaders of the "free world", U.S. administrations played an important role in setting the norms and institutions for every area of global policy, and family planning was no exception. U.S. Presidents Johnson and Nixon, in particular, developed policy agendas to counter

"overpopulation." President Nixon asked the U.S. Congress to study the issue, and formed the Commission on Population Growth and the American Future in 1970 (Goldberg, 2009). Four years later, the U.S. National Security Council completed *U.S. National Security Study Memorandum 200* under the direction of Henry Kissinger, which directed officials to evaluate the impact of world population growth on U.S. security and overseas interests (*U.S. National Security Study Memorandum 200*, 1974).

After the Cold War, attention shifted to the impact of demographic pressure on civil conflict, which seemed to be exploding around the world as the Cold War umbrella lifted and left behind poor governance, weak economies, and ethnic tensions. In an influential 1989 *Foreign Policy* article, Jessica Matthews argued that security should be redefined to include demographic and environmental concerns, as they both had significant global impacts. Matthews asserted that unprecedented levels of population growth led to resource scarcities and caused conflict, and that these pressures would only worsen in the future (Mathews, 1989). Migration also grew in importance on the national security agenda after the end of the Cold War, as the political rationale for accepting refugees fleeing Communism evaporated and concerns over terrorism became paramount in the West, first in Europe in the 1990s and then in the U.S. after 9/11 in 2001.

Although differential growth and overpopulation remain important, population aging has recently gained salience as the biggest issue for developed countries today and it is starting to raise attention in national security circles, as a later section will describe in detail.

Many critique that the broadening and extending of what constitutes "security" has become so excessive as to become meaningless, but demographic issues can be viewed even within a traditional, narrower vision of national security – the connections between population and power, and population and conflict are closely tied, as we see in the following sections.

## Population as Power

The theoretical foundations for linking population and national security overlap with the preceding timeline. From a theoretical standpoint, some scholars focus on population as a *resource*, while others frame the issue as one of demographic *pressure*, where institutions and other factors mediate.

The simplest link between population and power is viewing population as a resource: bigger populations mean bigger militaries, which mean more relative military power. In contemporary International Relations scholarship, population was considered an element of national power starting in the late 1940s, including by Morgenthau (1948: 91), who wrote that “*no country can remain or become a first-rate power which does not belong to the more populous nations of the earth.*”

At the same time, as the history of colonialism makes clear, states with smaller populations but greater capacity have often overtaken less capable states with larger populations. Bigger populations do not always translate into bigger militaries and bigger militaries do not always translate into more power, as there are many other elements of national power besides population, and factors like technology or military equipment are just as important as personnel.

One pathway through which population translates to power is the political democratic process. Many scholars have suggested that the size of demographic groups indicates their potential political power, and thus the preferences of the largest and most influential groups will be the preferences of the state itself. Thus, voter demographics are relevant to discussions of national power. In the case of Israel, differential growth in demographic groups has the potential to affect not only internal security and domestic policy but also foreign policy. Israel has very salient ethno-religious identities and differential population growth between ethno-religious groups. Usually, whatever party that wins the most seats forms a majority coalition with the ultra-Orthodox parties, which involves giving

into their demands for ultra-Orthodox family welfare, military exemptions, and stipends (for young men). However, this “Deal” may have seen its end with growing costs due to a bigger population of ultra-Orthodox Jews (which from independence to 2013 grew from 40,000 to 800,000). Future ruling coalitions may exclude ultra-Orthodox parties due to unacceptably high costs of the “Deal,” leading to decreased institutional privileges (Cincotta, 2017).

Domestic trends also affect a state’s ability to engage in armed conflict, particularly through economic consequences of demographic shifts. One mechanism is changing workforce capacities. All industrialized states will have shrinking working-age populations in the next couple decades, but most of them also have under-utilized segments of the population: youth, women, and older workers aged 50–64. In Japan, Europe, and China, there is room for much more elderly participation in the workforce. At the same time, increasing automation will lead to job displacement for the least educated, young, and old. If immigration continues in the US, immigrants will make up a higher proportion of the workforce, but if not the working-age population will shrink by 17 million people from 2015–2035 (Passel & Cohn, 2017).

## Population as Pressure

In addition to viewing population as a *component* of power, population can also be linked to national security as a *causal factor*. One theoretical pathway connecting domestic population trends and international conflict is lateral pressure theory, which argues that population growth places demands on domestic resources, and when those demands cannot be satisfied by national resources or through trade, states will turn outward to secure new sources (Choucri & North, 1989). According to this theory, expansionist activities will set the stage for conflict. During the 1980s and 1990s scholars began to “*identify changes in population sizes and patterns as both catalysts and shapers of political*

*instability and armed conflict*” (Nichiporuk, 2000: 6). As Nichiporuk points out, this was a dynamic view that looked at interactions, particularly between population and resources, rather than a static measure of national power.

In essence, what Choucri and North (1989) are pointing out in their lateral pressure theory is that demographic pressures can overwhelm a state’s ability to provide what the population expects. In another formulation, Goldstone (1991: xxvi) argues that “*what matters is the impact of demographic trends on economic, political, and social institutions.*” Specifically, Goldstone asks how well social structures respond to demographic change. One type of social structure we could consider is property and inheritance rights and how that structure interacts with high fertility. If a family has a fixed plot of land and it is to be given to the eldest son only, then any subsequent sons will be landless. If the plot of land is to be divided among sons and the fertility rate is high, then plots of land will be so subdivided as to be uneconomical, again creating the problem that sons are unable to make a living off the land. Prerevolutionary Iran provides an instance of the latter, as Shah Mohammad Reza Pahlavi redistributed land to peasants, but with high rural fertility rates and small plots of land, the ability of Iranians to make a living off the land diminished and resentment against the Shah grew.

According to this theory, institutions may for a while be able to absorb the pressure of such marginalized populations, but once institutional capacity is overwhelmed the chances of conflict are higher (Goldstone, 1991: 35). A state that has seemed primed for this conflict is Saudi Arabia, which for decades used oil wealth to employ its large population in the public sector. Eventually, however, a sustained high fertility rate outpaced the ability of the state to provide meaningful employment and Saudi Arabia has been attempting to change its model, lest the state face insurrection. This view is in line with that of many scholars, including Mathews (1989: 166), who argue that it is not population (or the environment) alone that cause state collapse, but the pressure population exerts on institutions and

the economy, which connects to insecurity and conflict. A subset of theorists labeled neo-Malthusians argue that deprivation alone is not enough to lead to conflict, rather these pressures weaken state authority and therefore open space for conflict to occur. Demographic and environmental stresses weaken state authority when they lead suffering segments of the population to place demands on the state that the state will be unable to address. These demands include infrastructure, housing, education, and lower food prices. State legitimacy may also be at risk if the population blames the state for its misery (Kahl, 2007).

While scholars may accept the idea of demographic pressure, these theories are often criticized for their long, complex causal pathways. Critics argue that population pressures are a distal cause, and thus their eventual connection to national security is hard to prove.

In a different formulation of pressure and social institutions, the societal security lens argues that threats to national identity equate to threats to the state. Thus, social cohesion is necessary to national security. Societal security, then, can equal national security, with societal security defined as “*the sustainability, within acceptable conditions for evolution, of traditional patterns of language, culture, association, and religious and national identity and custom*” (Wæver et al., 1993: 23). Either as societal security or through a civil conflict lens, then, demographics affect a state or society’s ability to avoid collapse.

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## Demographic Changes and Their Effects on Conflict

Demographics are useful in assessments of national security because they follow fairly predictable paths, which can help analysts successfully forecast certain conditions. In this section, we review in detail the various demographic trends and what scholars know about their connections to national security. Demographic trends in fertility, mortality, and migration drive a population’s overall size, distribution, and age composition, which we take here in turn. With



regard to size, quite simply population centers are shifting, and the great power bias in national security research is out of line with this new reality. There are much more detailed takeaways from research in age composition, especially, and distribution.

## Composition

### Population Age Structure

One type of composition is age structure – a population may be comprised of various proportions of young, middle-aged, and old – and because these compositions put various pressures on political, economic, and social structures, they can pose various challenges or opportunities for national security (Cincotta, 2017). Visually, age structure is best understood through a population pyramid. States with youthful age structures have populations with a classic pyramid shape: wide at the bottom and narrow at the top, reflecting typically high fertility and high, but likely declining, mortality. Age structure is in large part determined by where a country is along the demographic transition from high to low fertility and mortality. Those states that completed the transition decades ago have mature age structures, moving towards, if not already, an inverse pyramid with large elderly cohorts and small cohorts of children.

Numerically, age structure can be represented by proportions of the population under age 15, between ages 15 and 65, and aged 65 and older, or various other age categories. Most handily, though, it can be represented by median age, which ranged from a low of 15.2 years in Niger to 48.4 years in Japan in 2020 (UN Department of Economic and Social Affairs, 2019). Median age obscures some details of the age distribution but is a good representation of where the population's center of gravity lies and facilitates cross-national comparison.

Age structure is of interest to political demographers focused on national security for many reasons, including numbers of youth available as military manpower and numbers of

dependents outside the workforce. The various proportions of workers and dependents can have bearing on the funding available for the military and because of the intimate link between economic prowess and global power. States with high proportions of youthful dependents may face governance challenges that create domestic insecurity and spill over into civil war. In this sub-section, we discuss the literature related to three age structure types: youthful, transitional, and mature age structures.

### Youthful

Most developing nations have youthful age structures due to high fertility. They have low median ages, high proportions of child and adolescent dependents, and often rapidly growing populations. Even as fertility declines, as it has in most regions of the world, youthful age structures eventually turn into youth bulge age structures, which involve a high proportion of young adults, or more specifically, 15–29-year-olds. While the literature on the relationship between youthful or youth bulge age structures and political violence is inconclusive, we do know that males between the ages of around 15 to 29 are overrepresented in several forms of civil conflict, including riots, terrorism, rebel movements, and organized crime (Urdal, 2007; Weber, 2019). The focus in the literature, then, has been on trying to figure out why. Is there a theoretical link between this demographic group and risk of conflict and are societies with an abundance of young males more prone to conflict in general?

In its simplest incarnation, scholars have observed that youth have low opportunity cost for violence as they are yet to be fully integrated into the political, economic, and social strictures of adulthood, including employment and marriage. Most violence is committed by such youth, so scholars have extrapolated to argue that societies with an abundance of youth, then, will be more prone to violence. Yet most youthful countries are not engaged in civil war. Thus, most

of the scholarship is more nuanced and attempts to understand the conditions under which such an age structure translates into political violence.

Although many studies show that states with youth bulge age structures, those with a relatively larger cohort of 15–29-year-olds, have a higher propensity for internal political violence or civil conflict, the question of the relationship between a youth bulge age structure and conflict is far from settled. One issue is in defining the age structure itself. Many policy discussions and some scholarly articles regularly conflate a youthful age structure – that with a low median age and high proportions of children and young adults – and a youth bulge age structure, which should be defined as a true bulge, larger than the cohorts preceding and following it. While some critique such usage as “loose,” the theoretical pathways between a youthful age structure and conflict are similar to those of a youth bulge age structure and conflict because both focus on the youth.

There are several theoretical reasons why a youthful or youth bulge age structure might be more inclined towards conflict. First is a focus on supply and opportunity cost: scholars point out that a society with high proportions of military-age population have an easier time recruiting soldiers, whether they ultimately fight for the state or for a rebel group. Recruitment is particularly easier in a context where youth have few opportunities for meaningful employment, when their opportunity cost of joining the military or a rebel group is low.

A second theoretical link focuses on grievances and tries to understand when that dissatisfaction turns into political violence. When the labor market is unable to absorb large numbers of new entrants, as is the case in a youthful population where the number of those entering working ages increases every year, young people can become aggrieved by their poor economic prospects. Thus, researchers have argued that youth have a lower opportunity cost for violence, particularly in contexts of high unemployment. Findings in the literature have been mixed, but a study by Weber (2019) zeroed in on the role of post-primary education, finding that when there is a large presence of young males and high post-

primary education, the chance of political violence increases, even when youth unemployment is low. Thus, he finds, education and not low opportunity cost, is the driver of violence. Weber’s research strengthens the case for relative deprivation because education serves to raise political, economic, and social expectations, which are often unmet in youthful or youth bulge states with weak governance. A higher relative cohort size means the bulge-age group has higher competition in social, economic, and political opportunities, causing discontent. The concept of relative deprivation is key here. Expectations are high, and unmet.

Taken together, it is clear that one emphasis in the youth literature is a lack of jobs. Bricker and Foley (2013) focus on the pressure youth cohorts exert on the labor force as the main connection between youthful age structures and risk of civil conflict. As those neo-Malthusian scholars argue, it is one thing to be dissatisfied; it is another to turn that dissatisfaction into outright rebellion. Expectations can also go unmet when there are limited opportunities to express political voice, such as in a non-democratic setting. This leads to the third reason youth bulge age structures could have a higher propensity for conflict: youthful age structures are less likely to have democratic governance. That is because governments of youthful populations need to use authoritarian measures to put down youth *or* youth are more likely to support authoritarians. Following this logic, as more societies mature, they are more likely to become democracies, making the world more peaceful (if democratic peace theory is assumed to be true). Scholars have added more nuance to this thesis over time. The relationship between youth and conflict is more likely for non-ethnic civil wars (Yair & Miodownik, 2016) and does not seem to hold for non-competitive autocracies or personalistic dictatorships (Cincotta & Doces, 2012).

Age structure definitions have been loose in some of the scholarship on this issue. A youthful age structure might be less likely to be democratic, but the age group that engages in violence is still those of young adult ages, so it is difficult to theoretically separate the two. Policy

implications are unclear because some of the literature finds that too much education creates conditions for conflict, while the theoretical implications of much of the findings is that general increases in development, of which education plays a role, will improve economic conditions and potentially political freedom as well, both of which would decrease motives for rebelling. Education of women also helps lower fertility in the long run, which will eventually decrease the size of youth cohorts, but it takes decades for the larger cohorts to age and the age structure to mature. Some argue that states can create opportunities for youth through education and employment (drawing them away security-threatening opportunities) and promote policies that see youth as a resource, not just a burden, which can avoid self-fulfilling prophecies of the “threat of youth.”

Given that the literature on youthful or youth bulge age structures focuses on the role of young men in fomenting violence, the literature is susceptible to criticism. Sukarieh and Tannock (2018: 855) have criticized the youth bulge literature by saying that “*the concept of a ‘youth bulge’ has been used as a politically acceptable euphemism for talking about the problem of expanding surplus populations in the post-welfare and development state era.*” They discuss the literature and discourse around youth and security as the “*direct successor to claims in previous eras that framed the problem of ‘overpopulation’ in the Global South as a threat to US national security, and population control in these regions as an essential development priority for protecting US security interests. The difference is that, in the context of the Cold War, US foreign policy leaders worried that growing populations in low-income countries would create economic and political instability and foster the spread of communism rather than, as is the case today, Islamic fundamentalism and terrorism*” (Sukarieh & Tannock, 2018: 857).

While there is little evidence that youthful populations are more inclined to engage in international conflict, youth have at times rebelled and protested their state’s foreign policy, leading to international consequences of this domestic

demographic trend. Brooks et al. (2019: 65) have found that the same reasons that make youthful and youth bulge societies more inclined to civil conflict extend to international conflict as well, saying, “*(e)nhanced grievances and an augmented susceptibility to radicalization are ultimately fuel for youth-bulge societies to engage in all forms of conflict.*”

The danger with a focus on youthful age structure is that young people come to be seen as a threat to the state, rather than as a resource, which is exactly the focus of the literature on transitional age structures.

## Transitional

As states with youthful age structures grow economically and experience decreasing fertility rates, they shift into a transitional age structure. They have an increasing median age, decreasing proportion of dependents (both young and old), and an increasing proportion of working-age adults. Many scholars have found that transitional age structures are favorable for economic development – and by extension, national security – as much of the population contributes to the nation’s economy, public sphere, and military. In other words, having more workers can result in more economic activity, tax revenue, political participation, and potential military recruits. Additionally, the economic burden of young dependents proportionally decreases, both on the national and household level. Nationally, the ratio of dependents (who require resources without producing any) to workers decreases; in households, smaller families allow for increased per capita investments in education and health.

These benefits, called the “demographic dividend,” are best harnessed by investing in education and health and opening up the economy and labor markets. As Lutz et al. (2019) find, the dividend may be driven more by human capital investment, like education, than change in age structure itself. Their findings are in line with the contrasting experiences of East Asia and Latin America during their dividends. From 1965 to 1990, the East Asian working-age

population grew ten times faster than the dependent population. In China, rapidly falling fertility allowed the country to achieve a transitional age structure. One estimate shows that in East Asia, transitional age structure may have contributed to between one-third to one-half of the “miraculous” economic growth between 1965 and 1990 when the working age population grew 0.8% faster than the overall population (Williamson, 2013). Outstanding economic growth during that time gave China the base to become one of the world’s strongest military powers and increased its global influence. A transitional age structure may have set the scene but policies helped China harness its dividend. For example, China had high female labor force participation, stemming from a Communist emphasis on gender equality – in 2004, women made up 45% of the Chinese workforce. High rates of literacy have similarly helped; China’s literacy rate increased from 94 to 99% between 1990 and 2000. While the annual growth rate of GDP per capita in East Asia between 1975 and 1995 was 6.8%, over the same period it was only 0.7%, despite transitional age structures in both (Bloom et al., 2003). Latin America arguably squandered its dividend by neglecting to put in place a range of policies to support human capital and economic investment. In Mexico, high crime rates have discouraged investment and decreased potential for jobs, while emigration has resulted in reduced human capital.

Transitional age structures are also favorable for political development and democratization. Multiple nations have developed into stable liberal democracies as their age structures have matured.

## **Mature**

For the first time in history, mature age structures are increasing throughout the world due to low fertility rates and longer life expectancies. Mature age structures occur when fertility rates decrease for a sustained period, and are accelerated if life expectancies increase. This maturity leads to several developments, the most significant of which is a gradual decrease of working-age adults. With

below-replacement level fertility, generations will get smaller and smaller, also leading to a proportional decrease in size. Most of Europe, as well as China, South Korea, Japan, and Singapore have mature age structures. Aged populations, then, are those with mature age structures, a result of completing the demographic transition from high to low fertility and mortality. Such states have growing proportions of older persons relative to prime-age and children, and median ages typically over about 35 years. Population aging happened first in Europe but was soon followed by East Asia and other post-industrial societies. Many of these states are now in what some demographers refer to as the second demographic transition, which is a shift to ultra-low fertility rates (van de Kaa, 2003). For example, South Korea’s total fertility has been as low as 0.9 children on average per woman in the twenty-first century. With fewer working-age people to support a growing generation of elderly retirees, governments are now worried about debilitating welfare costs and a smaller workforce hurting their national security.

These aging populations face several national security challenges, most notably in the decline of military manpower and the economic workforce. Germany, Japan, and South Korea are all currently facing smaller military-age cohorts and are recognizing a need to adapt. South Korea’s 2018 Defense Reform 2.0 plan is a key example of military adaptation. Through these measures, active-duty personnel will be reduced from 599,000 to 500,000 by 2025, while the number of generals will be downsized from 436 to 360 for increased efficiency (Jang, 2018). Another problem facing mature age structures is high old-age dependency, as health and welfare spending could crowd out defense spending and make the state more risk-averse. Since the early 1990s, Japan and South Korea have seen their welfare spending increase at a much faster rate than defense spending in both absolute terms and as a percentage of GDP (Sheen, 2013). Both of these issues – manpower and economic strength – relate to a country’s ability to project power or protect its interests; there’s also the issue of willingness. Some argue that a country with an older age structure will be more casualty-averse, and

thus less willing to engage in conflict (Brooks et al., 2019).

However, states with mature age structures could augment their lost manpower and budgets through technology, alliances, and efficiency. In some cases, newly developed technology may be more cost-efficient than manpower, like the U.-S. military's use of drones and robots in the Middle East. Stronger alliances would allow smaller militaries to effectively pool resources and power, as exemplified by the European Union and NATO. At the same time, existing alliances can be fractured by demographic change, as we have seen with Europe. Writing about NATO in 2008, Simon (2008: 1) argued that "*diverging immigration patterns and shifting internal demographics could erode the common historic identity of the United States and Europe and affect the transatlantic relationship*" – we have already seen the EU break with Brexit. Regional alliances with transitional states, although unusual, could prove to be especially helpful. Increasing efficiency by restructuring and pooling resources within militaries could also help.

Mature age structures have been associated with a transition to liberal democracy in the literature, but recent developments suggest it may have simply been correlational – there are an increasing number of non-democracies entering mature age structures.

### Sex Ratio

Besides age, another type of composition to consider in an assessment of national security is the various sex and gender ratios within a society. When parents attempt to determine the sex of their child through sex-selective abortion, some scholars argue that the resulting distortions in composition have societal level consequences. Most often, when patriarchal norms and a willingness to act on those norms are present, we see a sex ratio at birth distortion that leads to millions of "missing girls." When those distorted cohorts reach the ages at which the pressures to get married are highest and yet the "supply" of women to marry is low, some men will be unable to find domestic partners. Scholars Valerie

Hudson and Andrea den Boer have referred to those surplus men as Bare Branches, and point out that because the most eligible bachelors will be able to find partners, it is the men in society with the least promise – earning power, quite often – who remain unmarried. Extending this argument in 2017, Hudson and Matfess focus on relative deprivation as the theoretical link between demographic structure and conflict outcomes, particularly "*marriage market obstruction caused by inflationary bride price as an additional factor beyond those already identified in the literature as predisposing young men to become involved in organized group violence for political purposes, including terrorism, rebellion, intergroup aggression, raiding, and insurrection*" (Hudson & Matfess, 2017: 8). In more recent incarnations of their research along these lines, Hudson, et al. have argued that oppression within the household translates to conflict at the national level (Hudson et al., 2020).

### International Migration and IDPs

A final issue of composition is migration, an issue that can also be viewed through the lens of distribution. As discussed in Chap. 29: *International Migration Policies* of this *Handbook* (Brown, [this volume](#)), increases in global migration and changes in the ethnic composition of societies have caused tensions worldwide, thereby changing the sources of conflict in several countries. Migration rarely directly causes conflict, but perception of population trends often matters just as much (or more) than the population trends themselves. In the case of migration, perception of "invasion" from outsiders can motivate domestic legal restrictions and produce a "rally 'round the flag" effect to mobilize citizens against a foreign enemy (Krebs & Levy, 2001: 85). Migration and human mobility influence three core areas of state power: economic, military, and diplomatic. Here, again, the intervening variable between migration and national security is policy: if states have the capacity to design and implement effective policies that "*harness the power of migration,*" international migration flows can enhance, rather than detract from or compromise, state power" (Adamson, 2006: 185). Fiona Adamson argues

that “(m)igration flows can interact with other factors in three ways to exacerbate conditions that foment violent conflict in the international system: by providing resources that help to fuel internal conduits; by providing opportunities for networks of organized crime; and by providing conduits for international terrorism” (Adamson, 2006: 191).

Migration can cause tensions by changing ethnic composition, putting additional pressure on infrastructure and institutions. Migrants can influence their host country’s politics to be aggressive towards their origin country. Examples include East Pakistan and India, Cambodian refugees in Thailand, and Afghan refugees in Pakistan. If mistreated, migrants can influence their origin country to step in, as has happened with Mexico and its migrants in the US, India and its migrants in South Africa, and Russia and its ethnic Russians in former Soviet republics. Classification of migrants as refugees can cause diplomatic tensions, as can differences in migration policy.

The vast majority of migrants are peaceful and move to find a better life. But a few bad apples can sometimes spoil the whole bushel. While rare, some refugees can become militarized and operate from bases abroad. Migrants can directly cause conflict as terrorists, drug traffickers, weapons smugglers, and so forth. High-profile terrorist attacks carried out by jihadists from migration backgrounds in Western cities like New York, London, Paris, and Madrid over the last two decades elevated migration on the national security agenda, from one of the lowest points to one of the higher.

Although these causal links have been proposed, there is not much research yet on *when* these links are to be expected or *how strongly* they correlate; also, there is little research on what the results could be: diplomatic tensions, militarized conflict, or war. There are also positives for national security of migration, as in cases of high population growth migration can act as a safety valve to relieve pressure on scarce resources. In the Philippines, for example, the state encourages and organizes emigration and welcomes the remittances its overseas foreign workers send home.

More people move within their borders than across national borders. Some of this is voluntary migration, but some is forced, and we label such people as internally displaced persons (IDPs). Certainly, there is a tight connection between IDPs and conflict, in that IDPs are often caused by conflict. But are IDPs themselves a national security risk? Thus far, there is little scholarship showing such connections.

As IDPs are aided by humanitarian organizations, that can create resentment among the native population and make IDPs vulnerable to attack, as a study of IDPs in Nigeria and Cameroon found (Eweka & Olusegun, 2016). In this regard, sons of the soil theory can be useful. These conflicts occur when an outsider group moves into another’s territory; the local or Indigenous group, are the “sons of the soil,” meaning they claim some tie to the territory. Recent migrants, in contrast, are seen as interlopers. One of the more commonly cited cases is Côte d’Ivoire, where migrants from neighboring countries like Burkina Faso moved in to work in the cocoa industry and displaced the native population, eventually becoming between 50 and 60% of the population by the late 1980s. The natives’ economic fortunes slipped relative to the newcomers’ and an exclusionary identity politics that privileged the autochthonous *ivoirité* emerged (Côté & Mitchell, 2015).

Mainly, IDPs are a human security issue, a humanitarian one – they are extremely vulnerable to personal violence, starvation, and health problems. Although the number of refugees worldwide is but a fraction of IDPs, the former receives the majority of scholarly and policy attention. Natural disasters displace populations as well, and are likely to increase in frequency and severity due to global climate change.

No society is homogenous – all have variations in composition, whether based on ethnic, racial, religious, or other characteristics – and civil conflict is still rare. Thus, it is wise to consider the conditions under which certain demographic composition trends are more likely to lead to political violence. For example, Krebs and Levy (2001: 85) argue that “if differential population growth among ethnic or religious groups

*results in the poor treatment of minorities, outside parties with an ethnic or religious stake in the outcome may come to their aid, threatening conflict across boundaries.”* The Russia-Georgia conflict of 2008 is an example of this.

When threats to national identity become equated with threats to the very nation itself, states may undertake various forms of “demographic engineering,” or manipulating demography to their advantage, in the name of national security. Morland (2014) points us to demographic numbers not just yielding military power, but yielding political strength. Instances of such demographic engineering are too numerous to list, but a few illustrative examples can demonstrate how these issues are entangled. One such example comes from Stalinist Russia, where the Soviets engaged in mass population transfers of those belonging to certain population categories, such as non-Russian ethnic groups. Transfers of millions of ethnic Poles, Ukrainians, Czecks, and others were carried out with the goal of achieving ethnic homogeneity and securing the state, including deportations from Crimea and the North Caucasus in 1944 (Martin, 2001). Certainly, population is an existential issue for Palestinians and non-Arab Israelis. A Jewish majority was the key to building the Israeli state from the beginning, but differential fertility rates have changed the religious (not only interreligious but religious vs. secular) populations of Israel over time and thus threatened to change the state’s identity.

### **Distribution: Urbanization**

While migration – both international and internal – can be viewed as an issue of composition, especially when such movement mixes people of different identities, migration is also an issue of distribution, meaning where the population centers are located. To illustrate the connection between distribution and national security, this sub-section focuses on urbanization. Increasing urbanization has been a persistent global trend. Only 30% of the global population was urban in 1950, but this figure jumped to half the world’s population in 2008. By mid-century, the UN estimates that 68% will live in urban areas,

with most of the growth concentrated in developing countries due to their projected population growth and low rates of urbanization. Developed countries, with slowing population growth and already high levels of urbanization, will see slower urban growth. Because of their large population sizes, India, China, and Nigeria will drive global trends. Currently, the most urbanized regions are those in the Western Hemisphere: North America at 82% of its population in urban areas and Latin America and the Caribbean at 81%. Europe is highly urbanized at 74% and 68% of Oceania’s population is in urban areas. The two least urbanized areas, and consequently the ones expected to see the highest future urban growth are Asia and Africa, with 50% and 43% of their populations urban, respectively. In absolute numbers, nearly 90% of the world’s population lives in Asia and Africa, with 1.47 billion in India and China together (UN Department of Economic and Social Affairs, 2018).

Although it is easy to think only of a large city or metropolis when discussing urbanization, the actual definition is far broader. The UN defines “urban” according to each country’s own national definition, meaning that it can be difficult to compare cross-nationally, although rarely do policy analysts acknowledge this methodological issue. Urban definitions include both a qualitative and quantitative element, for example some countries include an administrative element to their definition of urban. In Algeria, an urban area is defined as having “Groupings of 100 or more constructions” less than 200 meters apart; India’s definition includes “*all places having 5 000 or more inhabitants, a density of not less than 1 000 persons per square mile or 400 per square kilometer, pronounced urban characteristics and at least three fourths of the adult male population employed in pursuits other than agriculture*” (United Nations, 2019: 122). Just as they have varying definitions and sizes, urban areas come with a diverse set of challenges and opportunities.

One of the most significant effects of urbanization is the potential for economic development. “Potential” is stressed here because urbanization does not automatically lead to development,

although it seems necessary for development. In fact, an increasing number of scholars have noted that urbanization and industrialization are no longer synonymous. The rise of poor cities throughout Africa, in particular, has prompted scholars and policymakers to try and figure out what is different about today's urbanization patterns compared to earlier waves, including the first waves of industrialization in the West. Gollin et al. (2016) found a qualitative difference between consumption cities and production cities, the latter of which drives economic development because it emphasizes manufacturing or tradable services like finance. Consumption cities, however, are often found in resource-exporting contexts and have a higher proportion of workers in "non-tradable services," like transportation or personal services.

Urbanization can increase security by facilitating development, but it may also undermine security through its high vulnerability and conduciveness to unrest. A state's military security benefits from the economic development that urbanization brings. Additionally, having a higher population density can reduce transaction costs, incubate ideas, and make public spending on infrastructure and services more economically viable (Sciubba, 2011). Development not only strengthens a military's budget, but also strengthens the city and state's political influence. Another effect of urbanization, however, is cities' increased vulnerability to military attacks. With a host of economic, political, and social institutions concentrated in a densely populated area, cities make for prominent targets to potential adversaries. The September 11 attacks in the U.S. in 2001, 2004 Madrid train bombings, and the 2005 London bombings are prominent examples of urban attacks. Scholars are divided on whether urban population growth is more conducive to political violence, with Buhaug and Urdal (2013) finding insufficient evidence for either side of the argument.

Increasing urbanization will also require militaries to adapt to difficult urban environments, with its strategic uniqueness and higher potential for collateral damage. The difficulty of military

adaptation was demonstrated in 2014, when 800 Islamic State militants defeated 30,000 American-trained Iraqi Security Forces soldiers and easily took Iraq's second-largest city, Mosul. There are many challenges related to fighting in urban terrain; for example, much of the military's modern weapons and aerial intelligence, surveillance, and reconnaissance (ISR) capabilities will be less effective. Urban warfare is also manpower-intensive, as more buildings and structures need to be guarded. Similarly, the U.S. military's research covers various natural terrains, including the jungle and arctic, but fails to cover urban terrain. As a result, most of the training, operations, and structure of the military is ill-fitted for urban operations (Konaev & Spencer, 2018).

Youth in urban areas often have high unemployment, and relative deprivation theories would tell us that this leads to increased grievances, a higher motive for conflict. However, Urdal and Hoelscher (2009: 17) find that "*large urban male youth bulges do not seem to generally increase levels of social disorder in large cities in Asia and Sub-Saharan Africa. Most importantly, large urban male youth bulges do not seem to equate high levels of youth frustration and exclusion.*" Past waves of urbanization took place in states with higher governance capacity, and our studies of urbanization and conflict may be biased towards those cases and settings.

Rural-urban inequalities and slums provide significant challenges to the security of the state and to human security. Due to the high economic performance of cities, some states may neglect rural areas. With increasing differences in growth or living standards, rural populations experience relative deprivation, potentially leading to unrest. Slums are urban areas with weak governance and little to no provision of basic human needs, such as food, sanitation, and healthcare. These areas are growing due to a combination of factors, including "*underinvestment in basic infrastructure, poor planning to accommodate growth, unrealistically high standards for residential neighborhoods, infrastructure standards that are unaffordable for the poor, and insufficient*



public transportation that limits access to employment” (Struyk & Giddings, 2009: 2). Challenges to national security may come from popular discontent fueled by difficult conditions, or illicit actors shielded in the slums.

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## Future Role in National Security

Demographics remain an important backdrop against which national security analysts build various scenarios of the future. Once populations begin the demographic transition from high to low fertility and mortality, their path along the transition is fairly predictable, although the pace can differ. But as the demographic transition translates to an age structural transition, analysts can use demographics for greater insight into a state’s future. As Cincotta (2017) has described, an age-structural theory of state behavior can help generate a set of timed expectations. If we understand the probability of conflict associated with various age structures, for example, we can better forecast risk because through robust models we can project demographic trends one or more decades into the future.

As the world’s great powers simultaneously experience varying degrees of population aging, their demographic experiences grow in starker contrast to those of the least developed countries, which still have young and growing populations. Some states in sub-Saharan Africa have barely begun the last stage of the demographic transition (i.e., the fertility decline), and Nigeria is set to eclipse the United States as the world’s third most populous country by mid-century. While rhetoric around “overpopulation” today is framed more in terms of family planning and empowering women than overtly about demographic competition, the sentiments are still there, and it is clear that elites in higher-income countries worry about population growth in lower-income countries. Certainly, the states with the highest demographic pressures are also some of the world’s most fragile states and some of the ones facing the worst environmental pressures as well. Cities and populations will need to be more resilient than ever in the future, considering the effects of climate change.

Migration will certainly continue to bring people of disparate backgrounds in closer contact, and offer opportunities for conflict over basic ideas or economic competition.

There is much we know about the links between population and national security, but as new trends develop in new national settings, there is room for much more research. One area is the relationship between demography and democracy. For example, although youthful age structures are generally viewed as having a negative impact on risk of conflict, more research is needed on the link between youthful age structures and social justice, not just civil conflict (Sukarieh & Tannock, 2018). Similarly, while the world’s most aged states have thus far been the world’s most peaceful states, as the set of aging states grows more diverse and encompasses regimes and regions far different from that of Japan, Europe, and North America, we have the opportunity to find out if that relationship between aging and peace is correlational or causal.

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## References

- Adamson, F. B. (2006). Crossing borders: International migration and national security. *International Security*, 31(1), 165–199.
- Bloom, D. E., Canning, D., & Sevilla, J. (2003). *The demographic dividend: A new perspective on the economic consequences of population change*. RAND.
- Bricker, N. Q., & Foley, M. C. (2013). The effect of youth demographics on violence: The importance of the labor market. *International Journal of Conflict and Violence*, 7(1), 179–194.
- Brooks, D. J., Brooks, S. G., Greenhill, B. D., & Haas, M. L. (2019). The demographic transition theory of war: Why young societies are conflict prone and old societies are the most peaceful. *International Security*, 43(3), 53–95.
- Brown, S. K. (this volume). Chapter 29: International migration policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Buhaug, H., & Urdal, H. (2013). An urbanization bomb? Population growth and social disorder in cities. *Global Environmental Change*, 23, 1–10.
- Choucri, N., & North, R. C. (1989). Lateral pressure in international relations. In M. I. Midlarsky (Ed.), *Handbook of war studies* (pp. 289–326). Allen and Unwin.
- Cincotta, R. (2017). *The age-structural theory of state behavior*. Oxford Research Encyclopedia of Politics.

- <https://doi.org/10.1093/acrefore/9780190228637.013.327>
- Cincotta, R. P., & Doces, J. (2012). Chapter 7: The age-structural maturity thesis: The impact of the youth bulge on the advent and stability of liberal democracy. In J. A. Goldstone, E. P. Kaufman, & M. D. Toft (Eds.), *Political demography: How population changes are reshaping international security and national politics* (pp. 98–116). Paradigm Publishers.
- Côté, I., & Mitchell, M. (2015). Elections and “sons of the soil” conflict dynamics in Africa and Asia. *Democratization*, 23(4), 657–677.
- Eweka, O., & Olusegun, T. O. (2016). Management of internally displaced persons in Africa: Comparing Nigeria and Cameroon. *African Research Review*, 10(1), 193–210.
- Goldberg, M. (2009). *The means of reproduction: Sex, power, and the future of the world*. Penguin Books.
- Goldstone, J. A. (1991). *Revolution and rebellion in the early modern world*. University of California Press.
- Gollin, D., Jedwab, R., & Vollrath, D. (2016). Urbanization with and without industrialization. *Journal of Economic Growth*, 21(1), 35–70.
- Hudson, V. M., & Matfess, H. (2017). In plain sight: The neglected linkage between brideprice and violent conflict. *International Security*, 42(1), 7–40.
- Hudson, V. M., Bowen, D. L., & Nielsen, P. L. (2020). *The first political order: How sex shapes governance and national security worldwide*. Columbia University Press.
- Jang, S. (2018). How will ‘defense reform 2.0’ change South Korea’s defense? *The Diplomat*. <https://thediplomat.com/2018/08/how-will-defense-reform-2-0-change-south-koreas-defense/>
- Kahl, C. H. (2007). Demography, environment, and civil strife. In L. Brainard & D. Chollet (Eds.), *Too poor for peace? Global poverty, conflict, and security in the 21st century* (pp. 60–72). Brookings Institution Press.
- Konaev, M., & Spencer, J. (2018). *The era of urban warfare is already here*. Retrieved from <https://www.fpri.org/article/2018/03/the-era-of-urban-warfare-is-already-here/>
- Krebs, R. R., & Levy, J. S. (2001). Demographic change and the sources of international conflict. In M. Weiner & S. S. Russell (Eds.), *Demography and national security* (pp. 62–105). Berghahn Books.
- Lutz, W., Cuaresma, J. C., Kebede, E., Prskawetz, A., Sanderson, W. C., & Striessnig, E. (2019). Education rather than age structure brings demographic dividend. *Proceedings of the National Academy of Sciences*, 116(26), 12798–12803.
- Martin, T. (2001). Stalinist forced relocation policies: Patterns, causes, consequences. In M. Weiner & S. S. Russell (Eds.), *Demography and national security* (pp. 305–339). Berghahn Books.
- Mathews, J. T. (1989). Redefining security. *Foreign Affairs*, 68(2), 162–177.
- Morgenthau, H. J. (1948). *Politics among nations: The struggle for power and peace*. A. A. Knopf.
- Morland, P. (2014). *Demographic engineering: Population strategies in ethnic conflict*. Routledge.
- Nichiporuk, B. (2000). *The security dynamics of demographic factors*. RAND.
- Passel, J., & Cohn, D. V. (2017). Immigration projected to drive growth in U.S. working-age population through at least 2035. *FactTank*. <http://www.pewresearch.org/fact-tank/2017/03/08/immigration-projected-to-drive-growth-in-u-s-working-age-population-through-at-least-2035/>
- Sciubba, J. D. (2011). *The future faces of war: Population and national security*. Praeger Security International/ABC-CLIO.
- Sheen, S. (2013). Northeast Asia’s aging population and regional security. *Asian Survey*, 53(2), 292–318.
- Simon, J. (2008). NATO’s uncertain future: Is demography destiny? *Strategic Forum*, 236, 1–8.
- Struyk, R. J., & Giddings, S. (2009). *The challenge of an urban world: An opportunity for U.S. Foreign Assistance*. International Housing Coalition.
- Sukarieh, M., & Tannock, S. (2018). The global securitisation of youth. *Third World Quarterly*, 39(5), 854–870.
- Teitelbaum, M. S., & Winter, J. M. (1985). *The fear of population decline*. Academic.
- U.S. National Security Study Memorandum 200. (1974). <http://www.population-security.org/28-APP2.html>
- UN Department of Economic and Social Affairs. (2018). *Key facts: World urbanization prospects: The 2018 revision*. United Nations, Department of Economic and Social Affairs, Population Division. <https://population.un.org/wup/Publications/Files/WUP2018-KeyFacts.pdf>
- UN Department of Economic and Social Affairs. (2019). *UN world population prospects, the 2019 revision*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2019). *United nations demographic yearbook 2018*. United Nations, Department of Economic and Social Affairs, Statistics Division. <https://unstats.un.org/unsd/demographic-social/products/dyb/documents/DYB2018/Notes06.pdf>
- Urdal, H. (2007). The demographics of political violence: Youth bulges, insecurity, and conflict. In L. Brainard & D. Chollet (Eds.), *Too poor for peace? Global poverty, conflict, and security in the 21st century* (pp. 90–100). Brookings Institution Press.
- Urdal, H., & Hoelscher, K. (2009). *Urban youth bulges and social disorder: An empirical study of Asian and Sub-Saharan African cities* (Policy Research Working Paper 5110). World Bank Group.
- van de Kaa, D. J. (2003). Second demographic transition. In P. Demeny & G. McNicoll (Eds.), *The encyclopedia of population* (Vol. 2, pp. 873–875). Macmillan Reference USA.

- Wæver, O., Buzan, B., Kelstrup, M., & Lemaitre, P. (Eds.). (1993). *Identity, migration, and the new security agenda in Europe*. Pinter.
- Weber, H. (2019). Age structure and political violence: A reassessment of the “youth bulge” hypothesis. *International Interactions*, 45(1), 80–112. <https://doi.org/10.1080/03050629.2019.1522310>
- Williamson, J. G. (2013). Demographic dividends revisited. *Asian Development Review*, 30(2), 1–25. [https://doi.org/10.1162/ADEV\\_a\\_00013](https://doi.org/10.1162/ADEV_a_00013)
- Yair, O., & Miodownik, D. (2016). Youth bulge and civil war: Why a country’s share of young adults explains only non-ethnic wars. *Conflict Management and Peace Science*, 33(1), 25–44.



Toshihiko Hara

## Introduction: SDGs and Sustainability of World Population

The SDGs (Sustainable Development Goals) were adopted by all United Nations member states in 2015. They called for action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030 (UNDP, 2019).

The SDGs are aiming for: (1) No Poverty; (2) Zero Hunger; (3) Good Health and Well-being; (4) Quality Education; (5) Gender Equality; (6) Clean Water and Sanitation; (7) Affordable and Clean Energy; (8) Decent Work and Economic Growth; (9) Industry, Innovation, and Infrastructure; (10) Reducing Inequality; (11) Sustainable Cities and Communities; (12) Responsible Consumption and Production; (13) Climate Action; (14) Life Below Water; (15) Life On Land; (16) Peace, Justice, and Strong Institutions; and (17) Partnerships for the Goals.

These 17 Sustainable Development Goals are interdependent and based on complex causalities. Each goal has a list of targets which are measured with indicators. It is recognized that action in one area will affect outcomes in others, and that development must balance social, economic, and environmental sustainability.

According to the Sustainable Development Report (Sachs et al., 2019), the Global Index Score shows very different degrees of goal attainment across countries as of 2019. The range from the highest value of 85.2 in Denmark to the lowest value of 39.1 in the Central African Republic. The top 20 countries belong to OECD member countries (mostly in the EU) and most of the bottom 20 countries are in sub-Saharan Africa (see Table 35.1). The map of the SDGs Global Index Score indicates how uneven are the challenges to achieving the SDGs around the world (see Fig. 35.1).

Even though the SDGs Global Index Score integrates 17 different development goals, this geographic distribution suggests a strong relation to the stage of demographic development of the population. In this respect, it should be noted that the Global Index Score has a strong positive correlation with the life expectancy at birth (years) ( $r = 0.905$ ) and a weaker but still significant negative correlation with the adolescent fertility rate (births per 1000 women ages 15–19) ( $r = -0.756$ ); (see Figs. 35.2 and 35.3, respectively). As will be mentioned later, these two indicators identify different phases of the demographic transition in different countries.

The SDGs are the successor of the UN's MDGs (Millennium Development Goals) adopted in 2001, which had eight Goals: (1) Eradicate extreme poverty and hunger; (2) Achieve universal primary education; (3) Promote gender equality and empower women; (4) Reduce child

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mortality; (5) Improve maternal health; (6) Combat HIV/AIDS, malaria and other diseases; (7) Ensure environmental sustainability; and (8) Develop a global partnership for development.

These MDGs were complementary to the *Programme of Action (PoA)* of the International Conference on Population and Development (ICPD) held in Cairo in 1994. The relation among population, sustainability, and human rights had been defined for the first time at the ICPD Conference. This conference moved population policy away from a focus on human numbers to a focus on human lives, namely on improving the quality of lives for individuals, and increasing respect for their human rights. Among these, the right to reproductive health, which was later expanded to SRHR (Sexual Reproductive Health and Rights), was agreed upon by delegates from all regions and cultures as a basic human right. The PoA underscores the integral and mutually reinforcing linkages between population and development (UNFPA, 2004: iii).

The focus of population policy has shifted since 1994, but the mutual relationship between population and the development goals still exists. The degree of the goals' attainment depends mostly on the total population as the denominator of indicators. For example, the GDP per capita is one of the decisive indicators for Goal 1: No Poverty is directly affected by the size of the population in the denominator. Energy-related CO<sub>2</sub> emissions per capita (tCO<sub>2</sub>/capita), is one of the decisive indicators for Goal 12: Responsible Consumption and Production is also affected by population numbers. The more complicated influences of population developments (population growth, age structure, sex ratio, qualitative composition, etc.) can be observed on the numerator.

It could simply be assumed that population increase should be no good for attaining the development goals and that population decrease should have a positive impact on goals' attainment. However, we are observing nowadays far more complex causalities between population trends and the SDGs, and the possibilities of negative or even disastrous impacts from rapid

aging and decreasing population on the economy, education, welfare, and the environment in many countries and regions. Some countries and numerous communities encounter emerging problems in a "shrinking society" (Hara, 2015). In this context, the entire world is entering the last phase of the demographic transition and will be confronting both rapid aging and population decline, which threaten the demographic sustainability of the world population itself.

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## World Population Prospects as Assessed in 2019

The United Nations' medium projection is that the world's population is expected to grow from 7.7 billion (currently estimated) in 2019 to 8.5 billion in 2030 (11% increase), further to 9.7 billion in 2050 (25% increase), and eventually to 10.9 billion in 2100 (40% increase) (United Nations, 2019b) (see Fig. 35.4).

This means that the population will increase by more than three billion people in the next 80 years (see Chap. 1: *Contemporary Population Issues of this Handbook* [Goldstone & May, this volume]). One might feel the threat that the population may eventually break through to ten billion people. In fact, we have already experienced a population increase of 5.2 billion people, from 2.5 billion in 1950 to 7.7 billion in 2019. This increase happened in only 69 years. That was the consequence of the so-called "population explosion", with the record high population growth rate of 2.05% occurring between 1965 and 1970 (United Nations, 2019a). In contrast, the addition of the next 3.2 billion people will occur in a gradual rise during 80 years (see Fig. 35.4). Moreover the rate of increase will be near zero percent at the end of this century. The age of population growth is expected to be at an end.

On the other hand, the same UN projection from 2019 states that Japan's population will decrease from 126 million in 2019 to 75 million by 2100 (United Nations, 2019a). According to the 2015 Population Census, Japan's total population (including non-Japanese residents) was 127.27 million (IPSS, 2017a). Based on a

**Table 35.1** Global index score (Sustainable Development Report 2019)

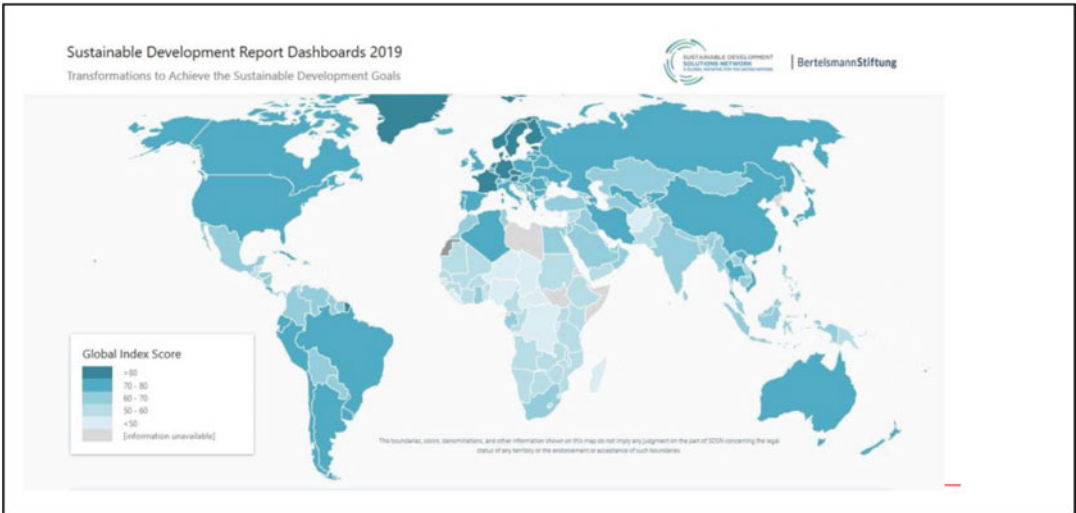
Top 20				Bottom 20			
Rank	Country	Region	Score	Rank	Country	Region	Score
1	Denmark	OECD members	85.2	143	Papua New Guinea	Oceania	51.6
2	Sweden	OECD members	85.0	144	Togo	Sub-Saharan Africa	51.6
3	Finland	OECD members	82.8	145	Burundi	Sub-Saharan Africa	51.5
4	France	OECD members	81.5	146	Malawi	Sub-Saharan Africa	51.4
5	Austria	OECD members	81.1	147	Sudan	Sub-Saharan Africa	51.4
6	Germany	OECD members	81.1	148	Djibouti	Sub-Saharan Africa	51.4
7	Czech Republic	OECD members	80.7	149	Angola	Sub-Saharan Africa	51.3
8	Norway	OECD members	80.7	150	Lesotho	Sub-Saharan Africa	50.9
9	Netherlands	OECD members	80.4	151	Benin	Sub-Saharan Africa	50.9
10	Estonia	OECD members	80.2	152	Mali	Sub-Saharan Africa	50.2
11	New Zealand	OECD members	79.5	153	Afghanistan	Eastern Europe and Central Asia	49.6
12	Slovenia	OECD members	79.4	154	Niger	Sub-Saharan Africa	49.4
13	United Kingdom	OECD members	79.4	155	Sierra Leone	Sub-Saharan Africa	49.2
14	Iceland	OECD members	79.2	156	Haiti	Latin America and the Caribbean	48.4
15	Japan	OECD members	78.9	157	Liberia	Sub-Saharan Africa	48.2
16	Belgium	OECD members	78.9	158	Madagascar	Sub-Saharan Africa	46.7
17	Switzerland	OECD members	78.8	159	Nigeria	Sub-Saharan Africa	46.4
18	Korea, Rep.	OECD members	78.3	160	Democratic Republic	Sub-Saharan Africa	44.9
19	Ireland	OECD members	78.2	161	Chad	Sub-Saharan Africa	42.8
20	Canada	OECD members	77.9	162	Central African Republic	Sub-Saharan Africa	39.1

Source: Sustainable development report (formerly the SDG Index & Dashboards) 2019

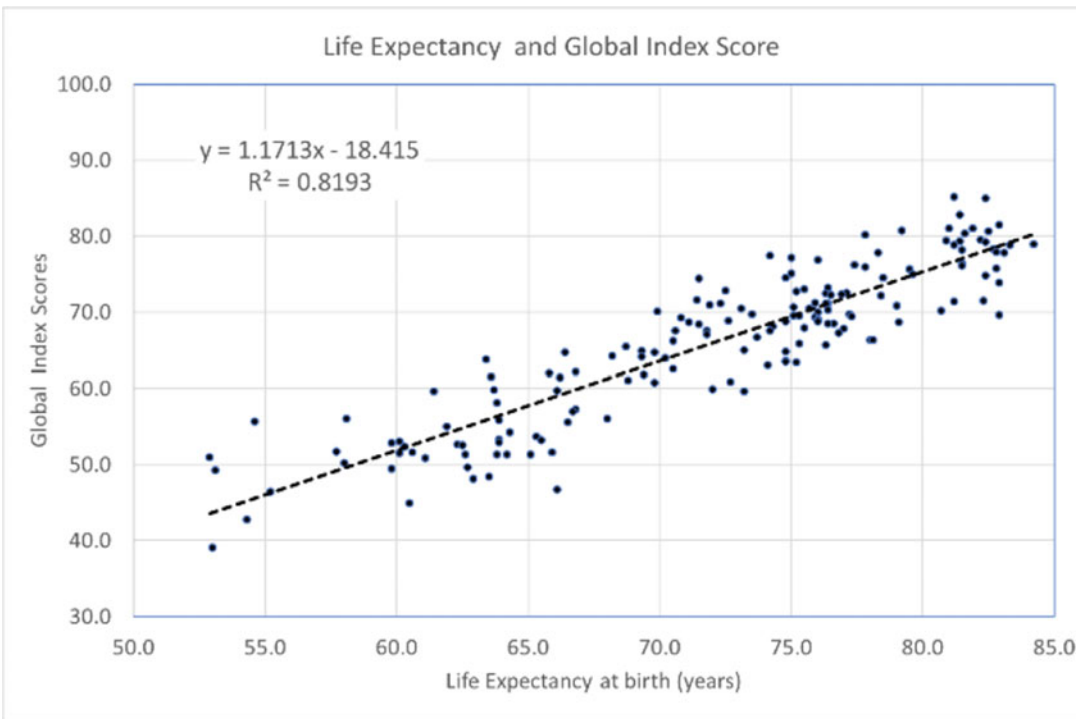
medium-fertility and mortality projection of the National Institute of Population and Social Security of Japan (IPSS, 2017b), Japan is expected to undergo a long period of population decline to 88.08 million by 2065. This projection represents a 30.8% decrease (39.19 million) compared to 2015. According to auxiliary projections by the

IPSS, Japan's population will be less than 60 million by 2100 (see Fig. 35.4).

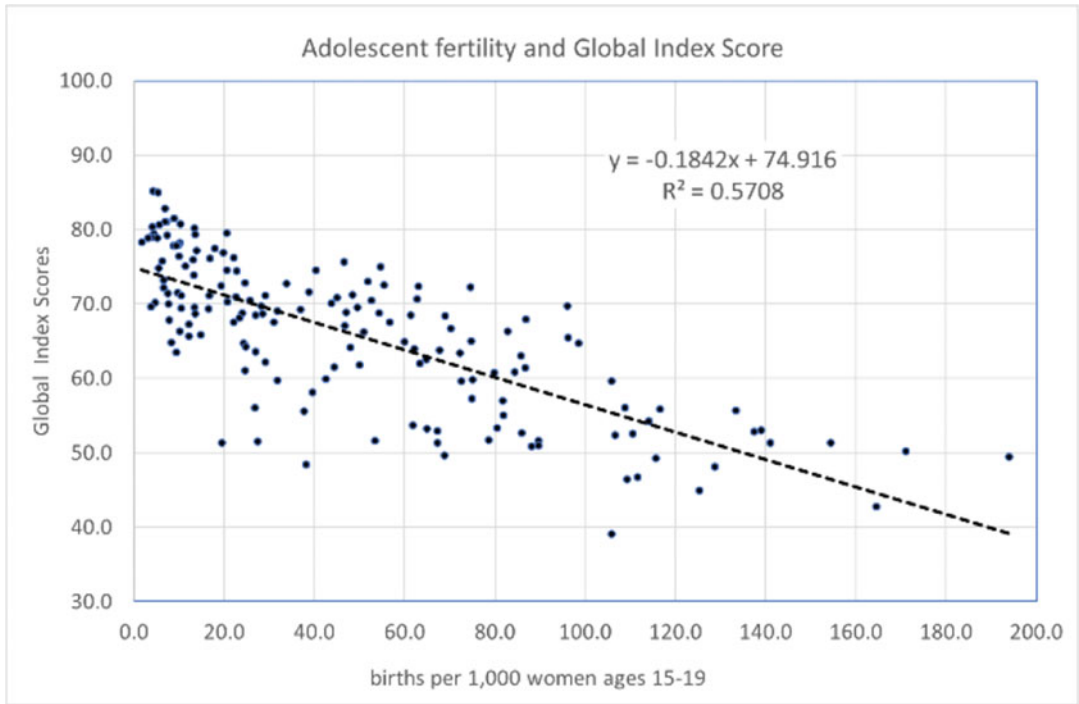
The discrepancy between the UN and the IPSS projections depends on some differences in assumptions about mortality, fertility, and migration. Nevertheless, both projections show clearly that Japan's population has entered a post-



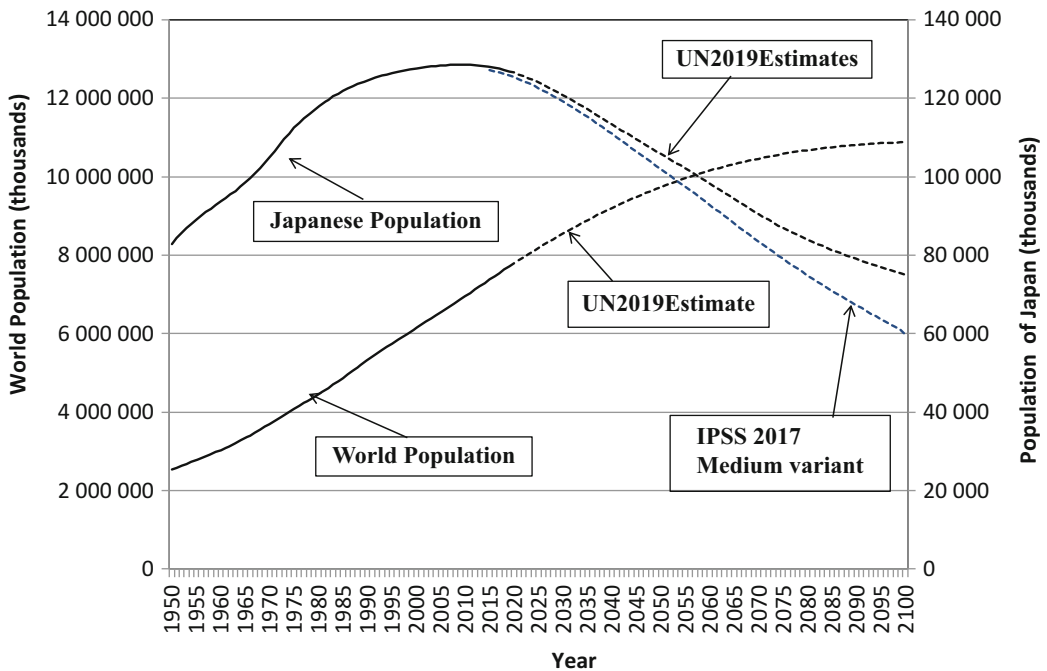
**Fig. 35.1** SDGs global index score. (Source: Sustainable Development Report, 2019)



**Fig. 35.2** Life expectancy and global index score. (Source: Sustainable Development Report, 2019)



**Fig. 35.3** Adolescent fertility and global index score. (Source: Sustainable Development Report, 2019)



**Fig. 35.4** Increasing World population and decreasing Japanese population. (Source: United Nations, 2019a; IPSS, 2017a, b)



demographic transitional stage (Sato & Kaneko, 2015), in which it will lead the world in population aging and population decline.

### The World's Next 3.1 Billion People

If we examine how the additional 3.1 billion population projected by 2100 is distributed into age groups, it consists of about 1.73 billion elderly (65+), 1.44 billion working-age adults (15–64), and minus 0.086 billion children (0–14) (United Nations, 2019a). Thus the bulk of the population increase is expected among elderly (65+) and working-age adults (mostly older working ages), while children and young adults will decrease (see Fig. 35.5).

The next 3.1 billion will also come from different regions. Most of the total increase (about 80%) is expected to occur in sub-Saharan Africa. In addition, the future increase of working-age adults (15–64) in the world will be 1.44 billion, as mentioned, but the main increase is expected to be two billion in sub-Saharan Africa, with a decline in working-age adults in other regions. This means that in the later twenty-first century, almost 37.5% of the working-age population in the world will be composed of sub-Saharan Africans (see Fig. 35.5) (United Nations, 2019a). In Asia, population growth will continue. However, only the elderly (65+) will actually increase, while the number of working-age adults (15–64) and children (0–14) will decrease. In Latin America and the Caribbean, and also in Europe, as well, the increasing population will be only elderly (65+) people. Above all, the number of elderly (65+) will increase tremendously in Asia, where the main countries will enter a post-demographic transitional stage like Japan, as a “shrinking society” (Hara, 2015) characterized by a fertility rate below replacement level, and a rapidly aging and decreasing population. In the case of Japan, even the number of elderly (65+) will decrease (see Fig. 35.4). In other regions, including Northern America and Oceania, the elderly (65+) and working-age adults (15–64), as well as children (0–14), will all increase,

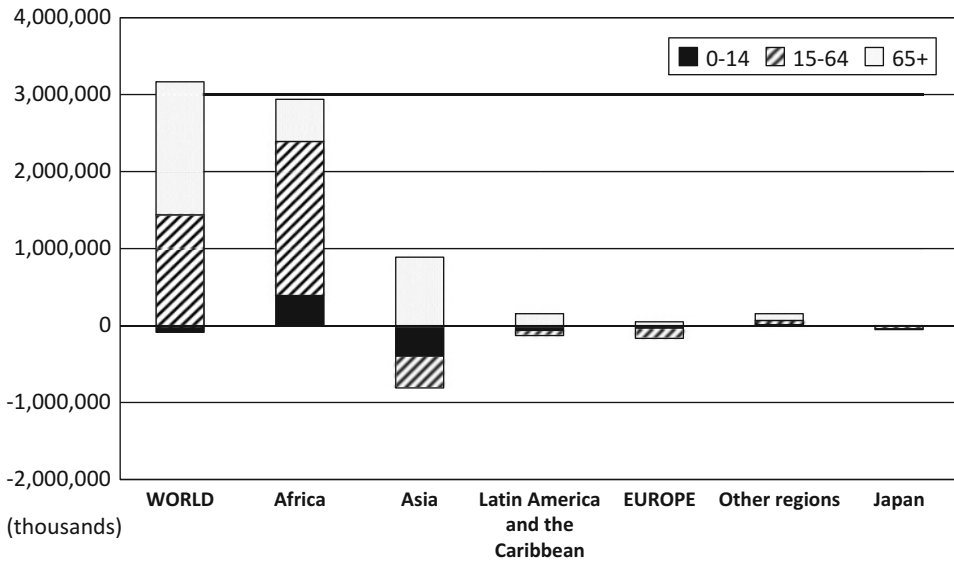
although their growth will be on a rather small scale (see Fig. 35.5).

### Global Trends: Decreasing Fertility and Increasing Life Expectancy

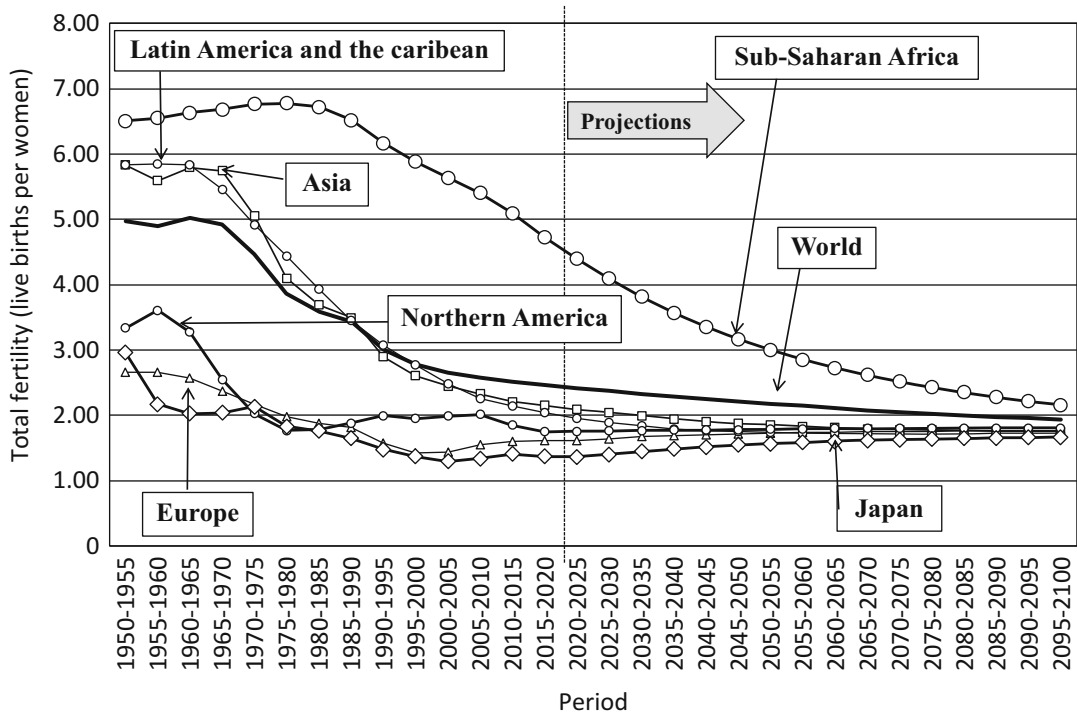
In most regions, the world's population is confronting rapid fertility decline and aging, except in sub-Saharan Africa. The combination of below replacement fertility and an increasing life expectancy at birth, which has been the usual pattern in Japan for decades, is now spreading globally as the demographic transition of the world population enters its last phase.

The United Nations (2019a) estimates that the total fertility rate (TFR) of the world declined from 5.02 at the peak (in the period of 1960–1965) to 2.47 at present (in the period of 2015–2020) (see Fig. 35.6). The only region that stays near the world historical peak is sub-Saharan Africa, with a TFR of 4.72. This value is 2.15 in Asia and 2.04 in Latin America and the Caribbean. The fertility trends of both regions show that they are nearing replacement level. As for highly developed regions such as Europe, Northern America, and Japan, which are driving the world economy, their total fertility rate has already fallen well below the replacement level of 2.1 births per woman, to 1.61, 1.75, 1.37, respectively (United Nations, 2019a). According to the UN estimates (United Nations, 2019a), already almost one half of the world's population lives in countries with below replacement fertility (Frejika, 2017).

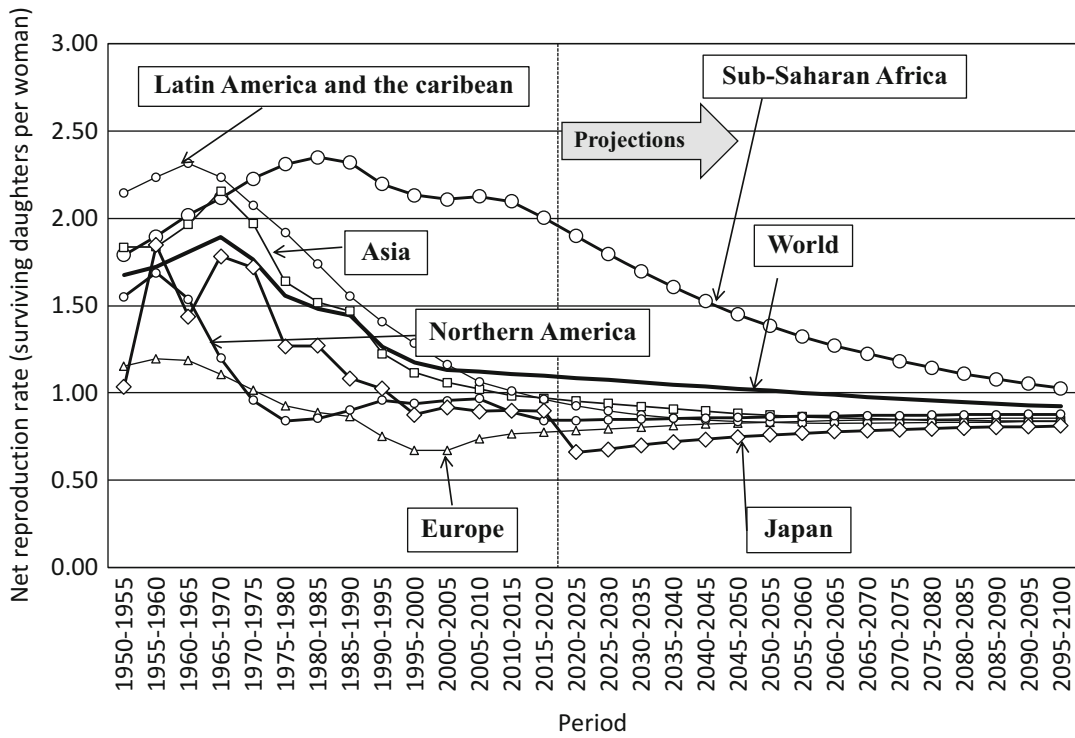
The net reproduction rate (NRR) indicates how the current level of fertility (TFR) compares with the replacement level of fertility, which is adjusted with the sex ratio at birth and the survival rate of women to the end of reproductive age (see Fig. 35.7). An NRR of 1 means that mothers in each generation are having exactly enough daughters to replace themselves. If the NRR is less than 1, the population does not reproduce enough to remain stable. For example, if the NRR is 0.70, the fertility level of the population is only 70% of replacement fertility and the population shrinks by 30% each generation.



**Fig. 35.5** Population changes in the next 3.1 billion by age group and regions. (Source: United Nations, 2019a)



**Fig. 35.6** Changing total fertility rates by region: Estimates (1950–2020) and projections (2020–2100) from the UN Medium Variant Projection. (Source: United Nations, 2019a)



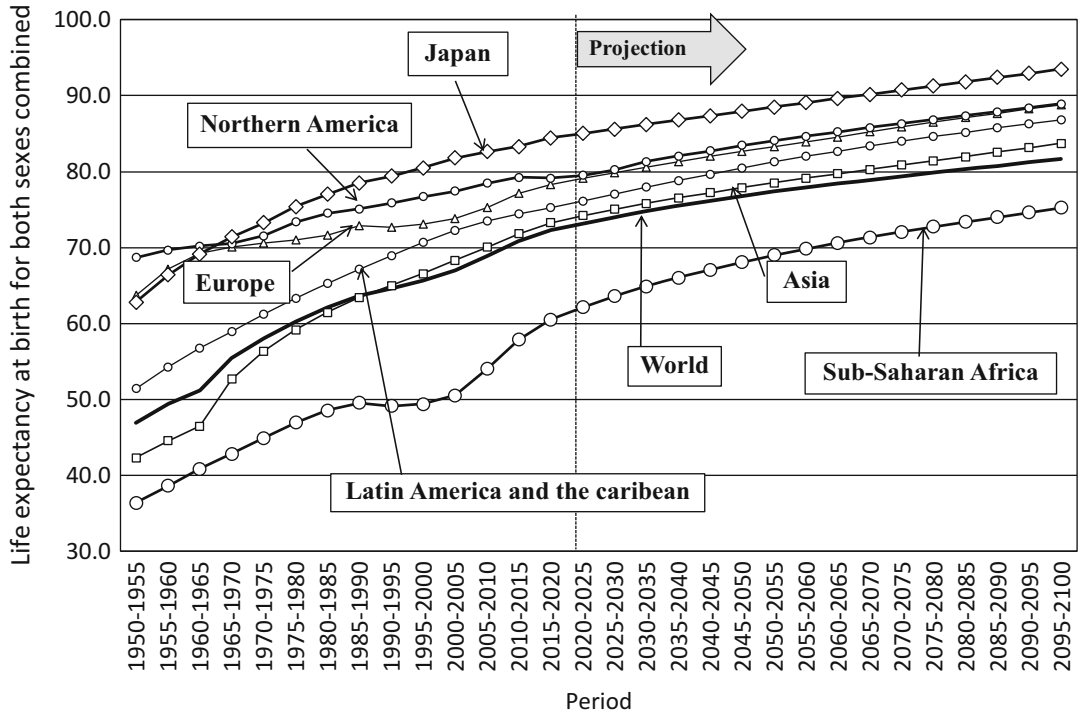
**Fig. 35.7** Changing net reproduction rates by region: Estimates (1950–2020) and projections (2020–2100) from the UN medium variant projection. (Source: United Nations 2019a)

According to UN estimates (United Nations, 2019a), the NRR of the world’s population is slightly above 1, at 1.099, but in sub-Saharan Africa the NRR is 2.002 (in the period 2015–2020). The NRR in Latin America and the Caribbean is 0.967, and in Asia is 0.971, both slightly less than replacement level. In the highly developed regions of the world economy, such as Europe, Northern America, and Japan, the values of NRR are far below replacement level, at 0.777, 0.843, and 0.662, respectively (United Nations, 2019a). As already mentioned, almost half of the world’s population lives in countries with NRR below replacement. Thus, it is easy to understand that more children (0–14) and working-age adults (15–64) should not be expected in the future, outside of sub-Saharan Africa.

The UN also estimates and projects (United Nations, 2019a) the trend of an average life span. The life expectancy at birth (both sexes combined) of the world’s population increased from

47.0 years in 1950–1955 to 72.3 years in 2015–2020. According to the UN medium variant projection, it will be 81.7 years in 2100 (see Fig. 35.8).

Japan’s life expectancy, which is now the longest in the world, increased from just 62.8 years in the post-war period of 1950–1955 (comparable to African countries today) to 75.4 years in the period of 1975–1980 and 84.4 in 2015–2020. It is expected to be prolonged to 93.5 years by 2100 (United Nations, 2019a). On the other hand, sub-Saharan Africa’s life expectancy started from 36.3 years in the post-war period of 1950–1955, when most of the countries in this region were suffering under colonial conditions. The average life span in this region has now nearly doubled, reaching 60.5 years for the period of 2015–2020. According to the UN’s projection, it is expected to expand to 75.2 years by 2100, which will be almost the same level of the more developed countries today.



**Fig. 35.8** Changing life expectancy by region estimates (1950–2020) and projections (2020–2100) from the UN medium variant projection. (Source: United Nations, 2019a)

### The Driving Force of Demographic Transition

The demographic transition (DT) is the process that occurs as countries transition from high mortality and fertility in pre-industrial society to low mortality and fertility in post-industrial society. One can say that the demographic transition (DT) is a *de facto* standard account of demographic change that is widely accepted in the social sciences. At the beginning, the process of the DT was observed only in Western countries but shortly after World War II, Japan followed as the first country in Asia to experience the DT. Then, this process spread to many other countries of the world. Nowadays, the major exceptions—countries that have not made a transition to much lower mortality and fertility—are to be found in only a few regions, mainly in sub-Saharan Africa and Middle East. However, the latter region can be regarded as being already at the end of Stage 3: late transition, where

mortality has fallen greatly and fertility has also fallen, but still remains above replacement.

While the process is widespread, the historical timing and speed of the DT are different in each country. The changing pattern in death and birth rates is not always the same, with the actual pattern of the declines in birth and death rates not always following the typical four stages of the classical demographic transition model: (1) High birth and death rates that balance so that population growth is minimal; (2) a rapid decline in death rates while fertility remains high or falls slowly, producing explosive population growth; (3) a steady decline in fertility while mortality remains low, producing much slower population growth; (4) a decline in fertility to replacement levels so that fertility and mortality again balance but at low levels, so that population growth is minimal. Furthermore, the causal relationships among the socioeconomic and cultural conditions that promote the various phases and trends of the transition are not obvious.

In addition, recent developments in post-industrial societies have raised further difficulties for a comprehensive causal model. Namely, the crude birth rate (CBR)—births per 1000 people—began to decrease to a very low level, caused by below replacement fertility and population aging (which increases the number of people not engaged in reproduction), while the crude death rate (CDR)—deaths per 1000 people—began to rise with much larger numbers of elderly in the population, who die at a higher rate than younger people. As a result, the Natural Growth Rate (NGR) of the population, given by the CBR minus the CDR, turns negative and the population begins to decrease. Lesthaeghe and van de Kaa, observing this trend, indicated in 1986 the possibility of entering a further demographic transitional stage, called the Second Demographic Transition (SDT) (see van de Kaa, 2002), in which the natural growth rate remains negative for an indefinite period. Further, their joint model includes international migration in two periods. In the first period, when the natural growth rate is positive and population is growing, net emigration occurred. In the second period, when the natural growth rate has turned negative, migration shifts to net immigration. This model added migration as an important factor in the demographic transition (see Fig. 35.9).

I have developed a demographic transition model of Japan (DTMJ), which was designed to capture the relations among key variables in Japanese society as it went through the transition. This is a mathematical model that needs only a few historical data inputs for the initial settings to reproduce the demographic transition of Japan. It includes six major factors: population-age structure, fertility, reproduction timing, social capital<sup>1</sup> accumulation, lifespan, and migration. The model can endogenously simulate the basic process of the Demographic Transition, such as from high mortality and fertility in pre-industrial society to low mortality and fertility, and also their

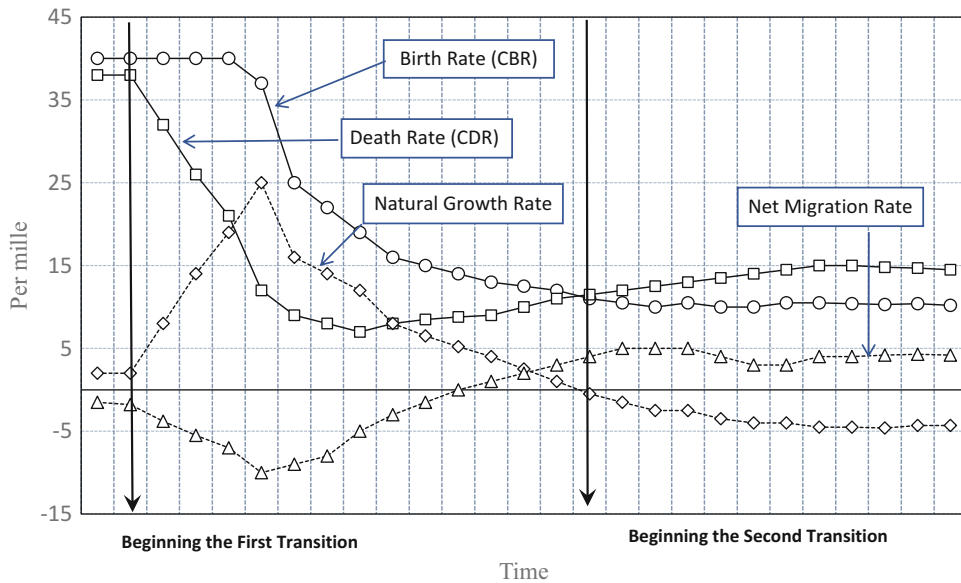
consequences, such as rapid aging, below replacement fertility and continued population decrease. The model is effective, except for some minor differences in detail with historical records and future projections (Hara, 2020).

This model demonstrates that if a small portion of the surplus from social production is accumulated to create productive capital, this increases the possibilities to expand life expectancy and to control the number and the timing of births (see Fig. 35.10).

Greater life expectancy at birth increases the survival rate of women in the reproductive age range and of their children, which reduces the replacement level of fertility and the desired number of children born. At the same time, the possibility to control births increases with social capital accumulation, so the completed family size becomes smaller. Furthermore, increased life expectancy prolongs the lifetime from 50 to more than 80 years. This change promotes a shift in the timing of family formation to a later stage of life, and reduces the reproductive portion of the total lifetime. The total number of births becomes much smaller in relation to the total number of women. Thus, in the post-demographic transition phase, the TFR stays below the replacement level of fertility, even though the desired number of children is greater than two on average.

As the DTMJ shows, the demographic transition can happen without an increase in productivity, insofar as the working-age population increases as a portion of the total population, in the absence of any resource and environment limitations. In actual history, some innovations in productivity, resource limitations, foreign trade, and migration could have surely influenced the speed and/or the timing of the demographic transition. However, they were not the main factor to foster the DT process. What promotes and degrades the accumulation of social capital is the population's development, because the major component of social capital is nothing but well-organized human capital supported by machines and infrastructure. In this respect, the main engine of the demographic transition is the population itself. Thus, this process could commonly happen in human society.

<sup>1</sup> Social Capital (SC) is defined as tangible and intangible assets, which increase with the development of the society, such as social infrastructure, human relations, knowledge, technology, education, and so on.



**Fig. 35.9** Model of first and second demographic transitions. (Source: van de Kaa, 2002. Drawing by the author)

With respect to the effect of migration on the demographic transition, successive model runs show that the outmigration of working and reproductive-age population weakens population growth, keeps the peak population at lower level, and advances the beginning of the population decrease earlier than without migration. In addition, outmigration promotes fertility decline earlier, while immigration delays fertility decline until later than without migration. This means that international migration should be an important key to control the world's demographic transition.

### The Narrow Pass for Demographic Sustainability

The world is entering the last phase of the demographic transition. As a result, the world's population growth rate is nearing zero. However, this wave is composed of different sub-waves by regions, which are in different phases of the demographic transition.

When the world population will peak, and how large its final size will be, will depend mostly on the population wave of sub-Saharan Africa,

where the growth rate is still high at more than 2% per year (2.65%) as of 2015–2020. The 2019 medium UN projections (United Nations, 2019a) expect this growth rate will decrease to 0.66% between 2095 and 2100. This is based on the assumptions that the TFR of 4.72 in sub-Saharan Africa will be decreasing slowly to a replacement level of 2.16, and that life expectancy will increase from 60.2 years in 2015–2020 to 75.3 years by 2100. Whether or not this scenario is realized will depend on sub-Saharan Africa's ability to mitigate its population growth, namely to minimize the difference between fertility and mortality.

By contrast, most of the world is entering a post-demographic transitional stage. The European population will peak around 2021, the Asian population will do so around 2055, and the Latin American and Caribbean population will peak around 2058 (United Nations, 2019a). In Northern America and Oceania, the population will continue to grow but at a slowing rate. All these regions are confronting rapid aging and population decline, like that already present in Japan. The 2019 UN medium projections expect that the below replacement level of fertility (less than 2.1 live births per woman) among the low

fertility countries will slowly recover, returning closer to replacement fertility in the projection period from 2020 to 2100 (United Nations, 2019c). For example, Japan's TFR is estimated as 1.37 in 2020 and is expected to be 1.67 in 2100 (United Nations, 2019a). If such a recovery is not realized, however, the aging and population decline could be far more severe than the 2019 UN projections assume.

In any case, after sub-Saharan Africa also enters a post-demographic transitional stage, the entire world population will likely be living in a "shrinking society". And as far as the DTMJ indicates, in contrast to the UN projections, world fertility will decline to below replacement levels and become stabilized at that level. Then, the world's population will begin to decrease exponentially.

Logically and mathematically, a diminishing human population in the near future is highly possible. In this respect, it is important for the forerunners of the post-demographic transitional stage of declining growth to find a way to stabilize their populations at the level they desire, to show that it is possible to control the population growth, and prevent societies like Japan from dwindling away.

Furthermore, the 2019 UN medium projections assume that the level of international migration from 2050 to the end of the twenty-first century would remain constant at the level projected in 2045–2050. In fact, the 2019 UN projections indicate that migration has become a major component of population change in many regions, such as Europe and Northern America, Northern Africa and Western Asia, and Australia/New Zealand between 2010 and 2020 (United Nations, 2019b). Above all, the influence of migration on population dynamics in the leading regions of immigration, namely Northern America and Oceania, should not be negligible. It may be a part of the reason why the population in both regions is expected to grow continuously until 2100, even if at a slowing rate.

I believe that international migration, and collaboration between the countries in different stages of demographic transition, should be the

key to negotiating the narrow pass to a sustainable future of the world population.

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### **Demographic Maturity and the Emergence of "a Shrinking Society"**

The late Professor Anatole Romaniuk, a Ukrainian-Canadian demographer, devoted some of his research to the question of stationary population as a policy vision for Canada and beyond. He wrote on the world entering a post-demographic transitional stage: "*As humanity is moving into a new age of its demographic evolution, I call it demographic maturity, the emerging demographic configurations – generational sub-replacement fertility, advanced aging and potential population implosion – call for new ways of thinking about population and new policy approaches*" (Romaniuk, 2010: 283).

Romaniuk indicated two defining moments of a post-demographic transitional stage, expanding health and longevity and consistently low fertility, at well below replacement level. He was fully aware of the possible deleterious consequences (e.g., ecological collapse and/or international conflicts over scarce resources) that the world would be facing if high fertility were still dominant in future. On the other hand, he warned us to be aware of an inevitable demographic consequence of enduring sub-replacement fertility, namely population implosion, not as a temporary phase, but as an exponential trend. He argued that a policy of demographic preservation through self-reproduction is not only desirable but is imperative for the survival of a demographically mature society as a national entity.

Romaniuk criticized the policy response to sub-replacement fertility and implied population decline in Western Europe and English-speaking countries, which is opting for large-scale immigration to maintain population growth and to satisfy the ever-growing demand for a labor force to keep the economy growing and profitable. Support for these policies remained strong in Canada, where both Liberal and

Conservative governments pursued a policy of maintaining population growth by means of massive immigration. However, Romaniuk argued that sustained immigration to maintain population growth without self-reproduction is bound to seriously affect a country's historical national identity. As of 2011, Canada had the second highest proportion of foreign-born permanent residents among all large countries, with 20.6% of the total population (Australia, at 26.8%, comes at the top) and the two provinces with the largest share of people born outside the country were Ontario with 3,611,400 immigrants (or 53.3%) and British Columbia with 1,191,900 immigrants (or 17.6%) (Romaniuk, 2017: 2–3).

Thus, Romaniuk strongly advocated a policy aimed at achieving in the long run a stationary population with a self-reproductive capacity. He wrote: “*what is important in my view is that nations do try to stabilize population at around zero growth at whatever level it might be feasible*” (Romaniuk, 2010: 283).

To ensure a self-reproductive capacity, Romaniuk thought that the traditional family support programs of the *welfare* type (like child allowances, maternity leave, day care, and similar handouts delivered in small amounts) would not be enough. He demanded a much more radical policy of balanced allocation of national resources, “*between production and reproduction, that is, between material and immaterial resources allocated to producing goods and services, on the one hand, and those allocated to conceiving, bearing and raising children, on the other*” (Romaniuk, 2010: 291). He vaguely imagined salary-equivalent for women and men who choose to pursue motherhood or fatherhood, namely a major shift in the allocation of resources from production to procreation.

Professor Franz-Xaver Kaufmann, a Swiss-German demographer, refers to the same emerging phenomenon as “*Schrumpfende Gesellschaft*” (“a shrinking society”), which is characterized by a fertility rate below replacement level, and a rapid aging and decreasing population. He also criticized our modern economy on its “*structurally imbedded disregard for family*” (Kaufmann, 2005: 152–158; 2011).

In the pre-modern world, all the social functions from reproduction to economic production were integrated in the family as a minimum social unit. Nowadays, most social functions have become independent from the family and specialized in other social sub-systems. The remaining social functions at the family level are reproduction and regeneration of human capital as well as stabilizing solidarity to society (through socialization processes, such as childcare and education, mutual trust, and assistance). At least, until today, those functions cannot be afforded with anything other than the family. On the other hand, the modern family must be cultivated not in a self-sufficient economy, but in a market economy, where almost all the goods and services are supplied in private markets and depend on money income. Usually, only the parents can earn money for the family, in economic competition in the labor market with childless laborers who can act more freely without the duties and restrictions of a family. Thus, as for important functions, such as reproduction, regeneration of human capital, and social solidarity, our society totally depends on the family and locks those functions in the family alone, without any regard for the individual who dares take on the role of parent. Against this situation, Kaufmann used the strong expression, “*Transferausbeutung der Familie*” (“Transfer exploitation of family”) (Kaufmann, 2005: 155). Therefore, his basic idea to ensure a self-reproductive capacity of the population is very similar with Romaniuk's balanced allocation of national resources “*between production and reproduction*”.

In this connection, Kaufman proposed “*die Kinder-und Jugendrente*” (a pension system for child and youth), which would be added to the usual pension system for the elderly. This unique pension system is based on his idea of “*Generationenvertrag*” (“Contract in generations”), which means a sort of “social contract” on allocation among three generations (demographically speaking: the child population, working age population, and elderly population). According to this contract, the generation in working age should be responsible for bearing and rearing the next generation as well as for caring for the retired generation.



I am rather skeptical whether solving the allocation problem between production and reproduction (or between people having children and childless people) alone would produce a recovery to the replacement level of fertility. However, it should be said that a shrinking society would confront many allocation problems, because rapid aging and population decline is changing society's demographic composition and increasing the disparities among different social groups with opposing interests. They are family and non-family, children and elderly, males and females, working and retired, rich and poor, healthy and nonhealthy, high-educated and low-educated, larger cities and smaller cities/rural groups, newcomers and natives, and so on. The conflicts would be focused on the redistribution of social resources among different groups. *“The basic solution is to understand how to readjust the existent distribution schemes to the future conditions. In other words, it is to recover the intergenerational function of reproduction in the society. If there is no change in the present distribution schemes, the social conflicts would be more visible and the society would lose the basis of solidarity”* (Hara, 2015: 43).

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## **Sustainable Population Policy and Foreseeable Problems**

### ***Restoring Replacement Level of Fertility***

As mentioned above, the 2019 UN projections assumed the convergence of fertility in all countries towards replacement level fertility, which would be realized by continuously decreasing fertility in sub-Saharan Africa and by restoring fertility to replacement level in other countries, including Japan (see Fig. 35.7).

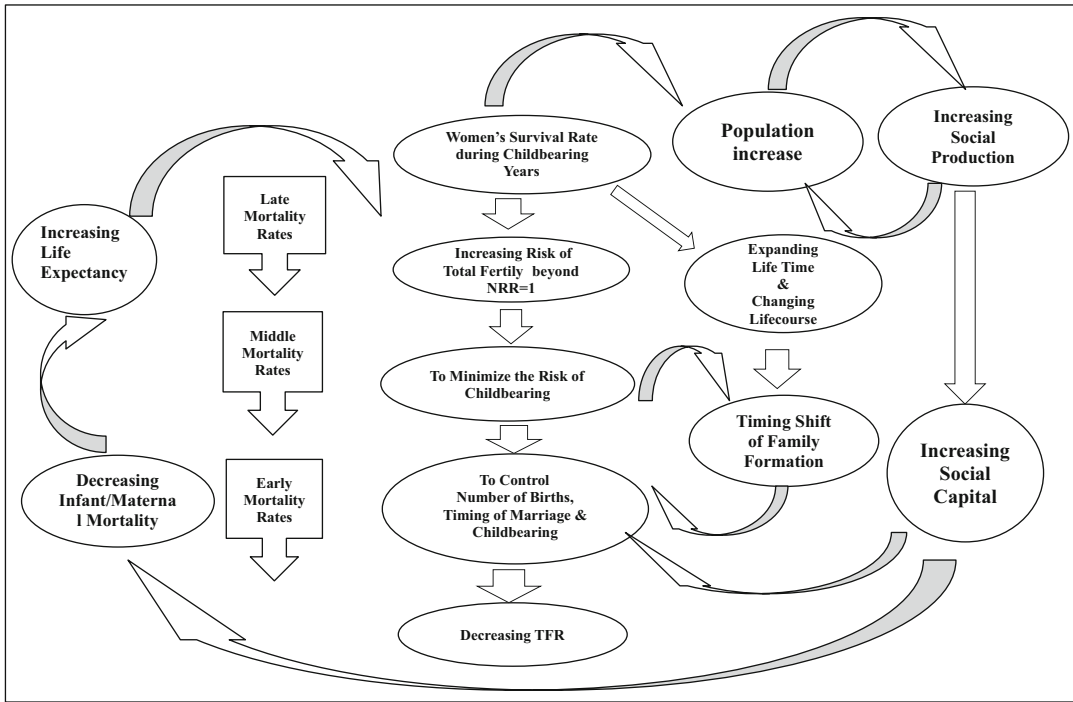
Simulation runs of the DTMJ indicate that a more rapid accumulation of capital could accelerate the demographic transition process and result in a more rapid shift to population shrinking than the standard run (Hara, 2020: 76–78). This suggests that for the late starter countries in the demographic transition, it is necessary to keep or speed up their capital accumulation, in order to

accelerate their fertility decline. They could not reduce their fertility otherwise, as most people do not have any other choice for survival except to bear many children, who have only few chances to survive, to go to school, to get a job, to marry, and to bear their own children.

Conversely, capital accumulation prepares the economic basis to enable individual decision-making on the number of births (children) and on the timing of family formation (see Fig. 35.10), including the option of having no children. Reproductive rights and health for individuals should be guaranteed and supported domestically and internationally. Naturally, cultural traditions and political rights of self-determination in each nation should be respected, but in the era of post-demographic transition, international society also needs to take responsibility for childbearing and childcare in terms of reproduction, to maintain the sustainability of the world population as a whole (Hara, 2015).

The recent history of the demographic transition shows that the late-starter countries, especially in Asia, have reached replacement levels of fertility faster than ever. They experienced simultaneously a “Demographic Dividend”, which stimulated unprecedented economic growth. Logically thinking, this will be necessary in Africa as well if the scenario of the 2019 UN projections about the world's next 3.1 billion should be realized, in which almost 37.5% of the world's working-age population would be living in sub-Saharan Africa, if the region is to develop a self-sustained economy.

In contrast to the high fertility problems in sub-Saharan Africa, the low fertility problems of the early-starter countries in the demographic transition, including Japan, are far more difficult to solve. As mentioned above, the DTMJ indicated that a faster accumulation of capital could accelerate the demographic transition process and result in more rapid shrinking than ever. Conversely, if the highly developed countries lost their economic power, with their decreasing and rapid aging populations, then their social capital accumulation would slow down or even would stop or degrade. As a result, they would lose their economic bases to enable individual decision



**Fig. 35.10** Casual loop diagram of three important feedback loops in the demographic transition in Japan. (Source: Hara, 2020)

making on the number of births (children) and on the timing of family formation. This scenario is partly plausible (maybe in low-income groups), but could not end up with the developed nations recovering to replacement-level fertility.

In the second phase of Japan’s fertility decline after World War II, women began to shift their age of marriage and have children later (at age of 30 and over) and also to minimize the life course risk of childbearing/childcare. Such risk reduction strategies included never getting married, having a single child, and remaining childless (Hara, 2015: 37–38). Therefore, if economic conditions are degraded, fertility can decrease further or stay below replacement level, to minimize the life course risk of childbearing/childcare. Fertility decline in the second phase, which was caused by the shift of family formation to a later life stage, and occurred with expanding life expectancy at birth, reduced the effective use of adults’ reproductive lifetime and decreased fertility below replacement level (Hara, 2015: 37–38).

In this context, two possible measures could be proposed for the recovery of fertility to replacement level in early-starter countries:

1. The timing shift of family formation to a younger age could magnify the range of the effective reproductive lifetime on average. For this purpose, society should support and guarantee early marriage and childbearing, so that those marrying and having children at younger ages will be successful in their life course.
2. To also support and guarantee those who marry and bear children later in life by using assisted reproductive technology (ART) (see Chap. 33: *Bioethics, Sex Selection, and Gender Equity* of this Handbook [Rahm, this volume]). This also expands the range of the effective reproductive lifetime at the later end, increasing both average and the maximum total fertility. Using ART, the number, timing, and interval of births could be theoretically adjusted to individual desires. In

particular, if we could shift the practical end of reproductive years from age 45 to 60 or even to older ages, we could compensate for the negative effect of expanding lifetimes on fertility.

Both proposed measures are based on the same idea developed in response to the high fertility problem in sub-Saharan Africa, that the reproductive rights and health of individuals should be guaranteed and supported domestically and internationally, to enable individual decision making on the number of births (children) and on the timing of family formation.

Even though these measures could be effective to some extent for fertility recovery, they would also bring number of problems. First, though we can support young couples in high school/university education or in beginning their jobs and careers in their choice to have children, we can hardly guarantee their successful future with children. We should aim to give them a clear advantage for having children (as compared to having no children at young age). However, such an advantage could enhance prejudice against couples who choose early childbearing. It could also cause a certain moral hazard among students, who though not emotionally ready for childbearing would do so for seeking advantages in school/job career. Further, it is difficult to draw lines among the different beneficiaries, such as married couple/parents, unmarried couple/parents, unmarried lone parent, divorced parents, and so on. Also, the conditions for social support can vary among potential beneficiaries, such as who is going to bear a child, or who is taking care of a child, and so on.

As for the case of older couples above 30 years old, the same problems can be expected. Maybe, in case of later childbearing and childcare, parents would have already finished their education and have a stable job, unlike younger couples. However, if they are around 50 years old, they have to prepare for their retirement life while raising their children. Furthermore, they are confronting the problem of natural fecundity. Among demographers, it is a well-known fact that around 10% of all couples end their life without

childbearing, mostly because of limited natural fecundity. The effect of limited fecundity due to aging is not uncommon.

However, the recent development of assisted reproductive technology (ART) is changing things. ART involves medical procedures used primarily to address infertility but also used by fertile couples for genetic reasons (e.g., pre-implantation genetic diagnosis). It includes *in vitro* fertilization, intra-cytoplasmic sperm injection, cryo-preservation of gametes or embryos, and fertility medication/fertility treatment (CDC, 2021). The practical use of this technology is costly and, in some places, legally limited at present, but is expanding rapidly. In Japan, 4.72% of live births in 2014 were born by using ART. Moreover, the percentage of live births from mothers aged 40–44 doubled from 7.8% in 2008 to 15.9% in 2014 (Hayashi, 2017).

Israel is well-known as a pioneer of ART. Israel's TFR was decreasing from 3.77 in 1972 to 2.7 in 1992, then it turned around to increase continuously, reaching 3.11 in 2016. In contrast, Iran's TFR had peaked at 6.52 in 1986 and then had a step, unbroken decline to below replacement fertility at 1.66 in 2016. According to press reporting (Asahi Shimbun, 2018), Israel had established the National Health Insurance Act in 1995, which guarantees to cover the full costs of *in vitro* fertilization by national insurance, as long as the woman is under 45 years old and has two children with a present partner. The same report introduced a gay couple who have three children by using surrogate motherhood. Even though the exact effect of this National Health Insurance policy on TFR in Israel needs to be examined, it is hard to imagine that it has no relation to the present high TFR.

Indeed, ART has opened new possibilities for childbearing. By using cryo-preservation of gametes or embryos, one can manipulate the timing of childbearing freely beyond the usual 35 years from 15 to 49, even after individual death or far into the future. Thereby, birth intervals are also changeable, even at the same time as multiple births. If one uses surrogate motherhood, one can in theory have any desired number of children. They can be selected or

designed according to a parent's wishes, and in the future for such qualities as sex, body type, health, intelligence, and so on.

The reproductive rights and health of individuals should be guaranteed and supported, even to enabling people to have as many children as they wish; yet the full realization of reproductive rights and health for individuals does not automatically ensure the convergence of the developed societies to replacement levels of fertility. Policies to enable and facilitate having children at any and all ages, and particularly "designer" choice of child characteristics by parents, need careful policy design and national/international consensus building.

### **Further Expanding the Lifespan**

The 2019 UN projections assumed an expanding lifespan both in sub-Saharan Africa and in other countries, including Japan (see Fig. 35.8). Sub-Saharan Africa's life expectancy was expected to increase from 62.1 years for the period 2015–2020 to 75.3 years by 2100 (United Nations, 2019a). It could well be possible to realize such average lifetimes by 2100, which today's more developed countries have already achieved or surpassed. As the DTMJ indicated, the main engine to promote this change is rapid capital accumulation per capita (Hara, 2020), which expands life expectancy, and makes it possible to control the number and timing of births. Conversely, the control of births can reduce mortality risks (especially of women), such as perinatal mortality, child mortality, and maternal mortality. In addition, eradicating the burdens caused by many children can improve child care and health and reduce mortality in general. Again, it expands life expectancy further.

Among the early-starter countries, Japan's life expectancy was expected to increase from 84.4 years for the period 2015–2020 to 93.5 years by 2100 (United Nations, 2019a). At this point, Japan's life expectancy is nearing the life expectancy maximum (LE max) in the DTMJ (Hara, 2020).

The key questions for longevity—whether there would be an upper limit of maximum human lifespan, and/or maximum average lifespans—have still not been answered today. As a *de facto* answer, the oldest confirmed recorded age for any human is 117 years, reached by Chiyo Miyako who lived between 1901 and 2018 (Gerontology Research Group, 2021). As for the maximum average lifespans in 2017, the top records are 87.7 years for females and 82.3 years for males in Hong Kong SAR, China (World Bank, 2021a). These *de facto* answers could be altered at any time in the future, if the prerequisite innovations in life science and technology arise. In this respect, these questions cannot be answered. In any case, it is plausible to expect that average lifespans would reach over 90 years in other early-starter countries, following the lead of Japan.

Simulation runs with the DTMJ indicate that if the biologically conditioned maximum life expectancy were expanded, the process of the demographic transition could be delayed but the population would decrease more drastically in the future (Hara, 2020: 79–80). The age structure of the population would change from a present "coffin" shape to a reversed pyramid figure, as fertility continued to fall further below replacement. Total population would decrease rapidly, namely exponentially (i.e., in a geometrical ratio) with a negative growth rate (i.e., the negative difference between the death rate and the birth rate), because of the rising proportion of elderly people in the total population, who provide zero fertility and are a high mortality risk group, in spite of expanding average lifespan.

Therefore, a shrinking society like Japan is confronted with serious problems to be solved:

1. Population aging and decline are reducing social demand and social production in the domestic market. The high-performance economy based on the scale advantages of a large domestic market can hardly be sustained.
2. The labor shortage would be eased by developing information technologies. However, the diminishing number of human citizens in each

generation threatens the sustainability of social organization.

3. With a rising dependency ratio due to rapid aging, it will be necessary to readjust the existing social welfare distribution schemes among competing groups, such as children and elderly, males and females, and the working and retired population. We should address the question about how to recover intergenerational production and reproduction (Hara, 2015).
4. With extended life expectancy, increasing medical/care costs for the elderly will be the core of the intergenerational allocation problem. The focus of elderly medical/care in Japan has already begun to shift from the extension of life expectancy to a better quality of life until death.
5. Increasing capital accumulation per capita expands individuals' possibilities to artificially control their own lives and their own deaths. In this context, our society can evolve to guarantee the human right not only to live but also to die according to one's own will. Recent tendencies in advanced societies indicate movement towards assuring the right to death with dignity, though raising vital questions about mercy killing and suicide.

### **The Role of Migration**

The 2019 UN projections assumed that international migration from 2050 to the end of the twenty-first century would remain constant at the level projected in 2045–2050, in contrast to the previous 2017 revision, which expected international migration around 2100 to be at half the level projected for 2045–2050 (United Nations, 2019d). This change reflects the likely continuing issues of asylum and migration from developing to developed countries, as well as the greatly increased scale of South-South migration.

Regarding the effect of migration on the demographic transition, the DTMJ indicated that the outmigration of working and reproductive-age

population weakens population growth, keeps the population peak at a lower level, and advances the beginning of the population decrease earlier than without migration. Outmigration promotes fertility decline earlier, while immigration delays fertility decline compared to its onset without migration (Hara, 2020: 80–82).

According to these findings, keeping or promoting the current trend of international migration from late-starter countries to early-starter countries should provide an important key to manage the world's demographic transition. Namely, for late-starter countries, the outmigration of working and reproductive-age population can promote earlier fertility decline, weaken population growth, and promote the demographic dividend to boost economic development (see Chap. 19: *Policies Needed to Capture Demographic Dividends* of this *Handbook* [Turbat, [this volume](#)]). For early-starter countries, the immigration of working and reproductive-age population from late-starter countries can promote the recovery of fertility from below replacement and decelerate the shrinking and aging of society. Above all, for early-starter countries, immigration can contribute to keeping social demand and social production growing in the domestic market. This is necessary for the high-performance economy to continue to enjoy the advantages of scale in production and consumption.

Nevertheless, the present international migration trend from late-starter countries to early-starter countries poses many serious problems to be solved (see Chap. 29: *International Migration Policies* of this *Handbook* [Brown, [this volume](#)]).

1. The European migrant crisis beginning in 2015 caused confusion and conflict in the European Union (EU) member states, among which the complete abolition of internal border controls and a common visa policy that had been promoted since the Schengen Agreement in 1985 made it impossible to readily control the movement of migrants once they entered any EU member state. The huge numbers of refugees, including asylum seekers and

economic migrants, arriving in the EU from across the Mediterranean Sea or overland through Southeast Europe created difficult political problems. The migrants encountered resistance in many European countries, fueling anti-immigrant parties and demands to exit the EU, like Brexit in England; these conflicts destabilized the agreements and cooperation among EU member states. This experience teaches that the acceptance of international immigrants today needs a strategic plan based on the long-term demographic perspective of the region (e.g., Europe), and which is able to keep the solidarities and collaboration among the EU states.

For this purpose, it is necessary to cultivate a common understanding among the member states that there is really no other choice than acceptance of international immigrants to keep their high-performance economies functioning. As for anti-immigrant parties, they should know, even if they would reject the immigrants, that the shrinking of the domestic market would continue and the problems of readjusting the existing income distribution schemes among different groups in the face of a fast-aging economy with ever-fewer workers would be unchanged.

2. Anti-immigration feeling grew so heated in the U.S. that the former U.S. president Donald Trump gave orders to build a wall on the Mexico-United States border to keep out illegal immigrants. He pledged to massively deport illegal immigrants residing in the United States and criticized birth right citizenship for creating “anchor babies”.

However, his “America first” policy would be self-defeating in the long term, because of ensuing demographic developments that would occur in the U.S. without immigrant flows from all over the world, above all from Middle and Southern America. The TFR of the United States had reached 2.12 in 2007, but then began to decrease. As of 2018, the TFR recorded was 1.73 (IPSS, 2021). The decreasing fertility trend of the U.-S. would certainly continue without the immigrant flows. At the same time on the other side

of the border, Mexico’s TFR peaked with 6.78 children per woman in 1964 and has been decreasing ever since, falling to 2.12 in 2018 (World Bank, 2021b). Soon, Mexico’s TFR will reach the replacement level and net Mexican immigrant flows to the U.S. will cease, even without a wall. Conversely, the best way to stop Mexican illegal immigration is the acceptance of legal immigrants, controlled strictly with mutual agreement accompanied by a free trade zone between Mexico and the U.S. Mexican economic growth will create a huge effective demand for American goods and services. This case suggests that international migration should be promoted based on the proper understanding of mutual interests between the sending country and the host country.

3. Against the rights of nations to control their borders and territory, international activists have advanced the principle that not only the refugees, asylum seekers, and economic migrants from disputed and/or economically collapsed countries, but all the people in the world, should have the right to move and live where they want. This right to freedom of movement has, in fact, developed through human history.

In the feudal era, most people were locked into a narrow territory and needed the permission of their feudal lord to move or to travel to other places. In modern and democratic states, the right to freedom of movement is recognized, at least within the national boundary, without limitation. With the globalization of the world, more and more individuals are linked through the Internet, social media, and inexpensive airlines. They can freely access information and move quickly via low-cost travel to any place in the world. In such circumstances, the nation-state closed in its own boundary without migration flows, tourism, or moving for business or education would lose its best chance for further development, both economically and demographically. Therefore, the historical tendencies indicate the likely future, in which freedom of movement would be guaranteed for all individuals on a global level.

4. For the present, however, it is far more important to regulate international migration on the global level. Wholly uncontrolled migration could invite social system collapse in both sending countries and host countries. As for sending countries, outmigration of qualified and wealthy people would hinder their own countries' development. As is well known, immigration brokers illegally send many unskilled poor people to host countries for cheap labor power, engaging in criminal human trafficking and international terrorism. As for host countries, the worldwide competition for highly skilled human resources is already severe, and will be harder yet with rapidly decreasing working-age populations in all the developed countries.

Increasing immigrants in host countries provokes antipathy from the local population, even from some recent immigrants, who feel threatened by new waves of immigration. In fact, the competition between immigrants and the host country's residents can always occur, in the areas of education, jobs, careers, residence, and social support. In addition, even though immigrants and their children do adapt to the host country's society in time, they bring their own lifestyle, traditions, and culture from their motherland. These can disturb the lifestyle, tradition, and culture of the host population.

Further, the rapid inflow of immigrants can change the proportion between newcomers and prior residents, and it can reverse the balance of power among groups within the host population. Even by the ordinary constant inflows of immigrants, the proportion between the immigrant-origin population and domestic-origin population could change over time, if immigrants can become permanent residents, get married, and bear children. They may also invite their family/relatives and other immigrants from their motherland. In early-starter states at the end of the demographic transition, where the native-born population is rapidly aging and shrinking, immigration is too useful to avoid, but therefore, those problems are unavoidable. It thus is necessary to control the

speed of immigrant inflows and adequately regulate international migration on the global level.

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## Conclusion: A Sustainable Future for the Human Population

As the DTMJ indicated (Hara, 2020), international migration can contribute to smooth the demographic transition of the world. It helps late-starter countries to accelerate fertility decline and keep their population peak lower. It helps early-starter countries to increase their fertility and to slow down the shrinking and aging of their population.

Nevertheless, we cannot greatly change the expected composition of the world population in 2100. According to the 2019 UN projections, it would be composed of Europe (5.8%), Asia (43.4%), Latin America and the Caribbean (6.3%), Northern America (4.5%), Oceania (0.7%), and Africa (including sub-Saharan Africa) (39.4%).

This future regional composition may be beyond our present imagination. But the demographic transition of the world is the integrated process of multiple demographic transitions with some delays. The human population is developing in continuous waves with many demographic transitions. It has a multi-fractal structure and is composed of innumerable logistic waves in the short term, which are integrated in a single logistic wave at the end of the process. And the composition of multiple waves can always change. Not only recent history since 1950 but also the long history of the human population indicates this inevitable fact.

Originally, *Homo Sapiens* lived only in Africa. After the "Out of Africa" period, we were spreading along the coast of Asia and reaching Australia, while Europe was populated by an early offshoot which settled the Near East and Europe less than 55,000 years ago. Part of us arrived in Northern America, Latin America, the Caribbean, and Micronesia. That was the first wave, which began with the invention of advanced tools in hunter-gather society one million years ago. The second wave started with the emergence of

agriculture around 10,000 years ago. In Ancient Egypt, Mesopotamia, India, and China, the new waves of growing population emerged independently with various civilizations.

After the changing waves in many population centers, the third wave began with the Industrial Revolution, less than 500 years ago. What we are experiencing now might be its after-wave, which began with the post-industrial revolution. It is difficult to describe retrospectively the changing composition of the world population by present regional category, but it would have been beyond our present imagination. In any case, it must surely be that most of us are the successors of immigrants from Africa and belong to the integrated waves from past to future. The same will be true for the world population in 2100.

We cannot predict when, but after the world's population peaks, it will almost certainly decrease, and with increasing speed. After the last wave of sub-Saharan African growth ends, the entire world's population may be living in a "shrinking society". Therefore, it will be vitally important in a post-demographic transitional stage to control the population growth rate to recover from negative values to zero, and keep it steady.

Capital accumulation per capita increases the possibilities for expanding life expectancy and to control the number and timing of births. This basic strategy must be unchanged for restoring the sustainability of the world population in the future. The possibility to control childbearing and our lifespan through individual decision-making will be even further developed in the future.

Reproductive rights and health, the human right to die according to our own will, and the freedom of movement should be guaranteed and supported at maximum by society, far beyond the present degree, for all the individuals on the global level. At the same time, this demand for individual rights should and must promote a consensus on social regulation and control on population, because the liberalization of demographic activities inevitably brings many conflicts among individuals, groups and countries, which need to be fairly solved by society.

As far as such full realization of individual rights does not automatically ensure the convergence to a stable population, the divergence would have to be adjusted by society to keep post-transition societies from dwindling away. Those interventions to population development by society must keep in mind the ever-present dangers of eugenics, totalitarianism, and discrimination. Without careful policy design and national/international consensus building, we could live in a Brave New World (Huxley, 1932/1958), under the control of "Big Brother" (Orwell, 1949) as computerized in Artificial Intelligence (AI).

To conclude, we need to have a balance between the freedom of individual-decision making and agreement on social policies to incentivize a balance of births, deaths, and migration that will realize a sustainable population, while avoiding a fall into coercive, discriminatory, or harmful population policies, as has happened too often in the past.

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## References

- Asahi Shimbun. (2018). *Israel's high fertility, its background? Vitro fertilization by national insurance*. Reported by Takeshi Watanabe, April 23 [in Japanese]. See <https://www.asahi.com/articles/ASL4Q7QVWL4QUBQU00N.html>. Accessed 5 Nov 2021.
- Brown, S. K. (this volume). Chapter 29: International migration policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- CDC. (2021). *What is assisted reproductive technology?* Centers for Disease Control and Prevention. See <https://www.cdc.gov/art/whatis.html>. Accessed 10 Mar 2021.
- Frejka, T. (2017). *Half the world's population reaching below replacement fertility*. N-IUSSP.ORG, IUSSP's online news magazine. See <https://www.niussp.org/fertility-and-reproduction/half-the-worlds-population-reaching-below-replacement-fertility/>. Accessed 21 Oct 2021.
- Gerontology Research Group. (2021). *GRG World supercentenarian rankings list: Validated deceased supercentenarian*. See <https://grg.org/WSRL/TableE.aspx>. Accessed 10 Mar 2021.
- Goldstone, J. A., & May, J. F. (this volume). Chapter 1: Contemporary population issues. In J. F. May & J. A.



- Goldstone (Eds.), *International handbook of population policies*. Springer.
- Hara, T. (2015). *A shrinking society: Post-demographic transition in Japan*. Springer Briefs in Population Studies, Population Studies of Japan.
- Hara, T. (2020). *An essay on the principle of sustainable population*. Springer Briefs in Population Studies, Population Studies of Japan.
- Hayashi, R. (2017). *Assisted reproductive technology and fertility* [in Japanese]. See <http://www.paoj.org/taikai/taikai2017/abstract/1153.pdf>. Accessed 10 Mar 2021.
- Huxley, A. (1932/1958). *Brave New World and brave New World revisited*. Harper Perennial Modern Classic. (published in 2005).
- IPSS. (2017a). *Population statistics of Japan*. National Institute of Population and Social Security Research. See [www.ipss.go.jp/p-info/e/psj2017/PSJ2017.asp](http://www.ipss.go.jp/p-info/e/psj2017/PSJ2017.asp). Accessed 19 Dec 2018.
- IPSS. (2017b). *Population projections for Japan: 2016 to 2065 (Appendix: Auxiliary projections 2066 to 2115)*. National Institute of Population and Social Security Research. See [http://www.ipss.go.jp/pp-zenkoku/e/zenkoku\\_e2017/pp\\_zenkoku2017e.asp](http://www.ipss.go.jp/pp-zenkoku/e/zenkoku_e2017/pp_zenkoku2017e.asp). Accessed 19 Dec 2018.
- IPSS. (2021). *Population statistics of Japan 2021*. National Institute of Population and Social Security Research.
- Kaufmann, F. X. (2005). *Schrumpfende Gesellschaft*. Suhrkamp.
- Kaufmann, F. X. (2011). *Shukugensuru Shakai—Jinko Genshou To Sono Kiketsu* [In Japanese; Trans. T. Hara & A. Uozumi]. Hara Shobo.
- Orwell, G. (1949[2013]). *Nineteen eighty-four: The annotated edition*. Penguin Modern Classics.
- Rahm, L. (this volume). Chapter 33: Bioethics, sex selection, and gender equity. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Romaniuk, A. (2010). Fertility in the age of demographic maturity: An essay. *Canadian Studies in Population, Special Issue*, 34(3–4), 283–295.
- Romaniuk, A. (2017). Stationary population, immigration, social cohesion, and national identity: What are the links and the policy implications? With special attention to Canada: A demographer's point of view. *Canadian Studies in Population*, 44(3–4), 283–295.
- Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., & Fuller, G. (2019). *Sustainable development report 2019*. Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN).
- Sato, R., & Kaneko, R. (2015). Japan in the post-demographic transition period: Theoretical and empirical perspectives on the long-term population dynamics. *Journal of Population Problems*, 71–72, 65–85. See [http://www.ipss.go.jp/publication/e/jinkomon/pdf/20067301\\_25.pdf](http://www.ipss.go.jp/publication/e/jinkomon/pdf/20067301_25.pdf). Accessed 9 May 2019.
- Sustainable Development Report. (2019). *Global index results 2019 (Formerly the SDG index & dashboards)*. See <https://www.sdindex.org/reports/sustainable-development-report-2019/>. Accessed 3 Sept 2021.
- Turbat, V. (this volume). Chapter 19: Policies needed to capture demographic dividends. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- UNDP. (2019). *What are the sustainable development goals?* United Nations Development Programme. See <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>. Accessed 28 Nov 2019.
- UNFPA. (2004). *Programme of action adopted at international conference on population and development, Cairo, 5–13 September 1994*. United Nations Population Fund. See [https://www.unfpa.org/sites/default/files/event-pdf/PoA\\_en.pdf](https://www.unfpa.org/sites/default/files/event-pdf/PoA_en.pdf). Accessed 28 Nov 2019.
- United Nations. (2019a). *World population prospects: The 2019 revision [database]*. Department of Economic and Social Affairs, Population Division. See <https://population.un.org/wpp/>. Accessed 10 Mar 2021.
- United Nations. (2019b). *World population prospects 2019: Ten key findings*. Department of Economic and Social Affairs, Population Division. See [https://population.un.org/wpp/Publications/Files/WPP2019\\_10KeyFindings.pdf](https://population.un.org/wpp/Publications/Files/WPP2019_10KeyFindings.pdf). Accessed 10 Mar 2021.
- United Nations. (2019c). *World population prospects 2019: Methodological updates*. United Nations, Department of Economic and Social Affairs, Population Division. See [https://population.un.org/wpp/Publications/Files/WPP2019\\_Methodological-updates.pdf](https://population.un.org/wpp/Publications/Files/WPP2019_Methodological-updates.pdf). Accessed 10 Mar 2021.
- van de Kaa, D. J. (2002). *The Idea of a second demographic transition in industrialized countries* (Paper presented at the Sixth Welfare Policy Seminar). National Institute of Population and Social security (NIPSSR). See <https://pdfs.semanticscholar.org/17c8/c2c3b43d447474107554926eb289d269c939.pdf>. Accessed 23 Apr 2019.
- World Bank. (2021a). *DataBank: Life expectancy at birth, female (years), Life expectancy at birth, male (years)*. See <https://data.worldbank.org/indicator/SP.DYN.LE00.FE.IN>. Accessed 10 Mar 2021.
- World Bank. (2021b). *DataBank: Fertility rate, total (Births per woman)*. See <https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?locations=MX>. Accessed 10 Mar 2021.



# Prospects for Population Policies and Interventions

# 36

John F. May and Jack A. Goldstone

## Introduction

This chapter charts the needs and prospects for population policies and interventions.<sup>1</sup> For three main reasons, it is a daunting task. First, there is a wide variety of demographic situations across countries and, today, the world is demographically more fragmented than ever. Second, a number of global challenges have emerged, including climate change and the environment as well as new pandemics, which make the task of addressing population issues via national policies more difficult. These new challenges are compounded by rapid urbanization, with the growth of ever more megacities in middle- and low-income countries, and growing worries about ‘demographic security’ (i.e., the risk of social unrest caused by very young age structures). All these factors may jeopardize ongoing efforts to reduce poverty and inequality and promote gender equality. Third, population policy interventions are difficult to design because demographic trends are affected not only by policies that target specific demographic

components but also, and more importantly, by policies focused on other development sectors, e.g., education, health, gender, women’s empowerment, equity, industrialization, and laws and regulations. The redefinition of population policies will also necessitate addressing institutional issues, such as developing the funding required for population policy interventions, and the need to focus policy interventions on priority constituencies.

Today, the world is demographically more diverse than ever. While the world’s population continues to grow (it reached 7.8 billion people in mid-2021; see Population Reference Bureau, 2021), the overall population growth masks wide variations. Many of the more developed countries, which are threatened by population aging and eventually depopulation, must address issues of sub-replacement fertility and immigration. In contrast, many of the less developed countries, whose populations continue to grow because of fertility above replacement level and population momentum, need to complete their demographic transition while continuing to improve the socioeconomic status of their populations. Finally, the least developed countries or LDCs (a poorer sub-group of 46 of the less developed countries),<sup>2</sup> whose populations are still growing quite rapidly, would benefit from

<sup>1</sup> This chapter uses some material from Chapter 9: *Future Prospects for Population Policies* from John F. May, *World Population Policies: Their Origin, Evolution, and Impact*, Dordrecht, NL: Springer, 2012, pp. 237–269.

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<sup>2</sup> See <https://www.un.org/development/desa/dpad/least-developed-country-category/lDCs-at-a-glance.html>, accessed on August 17, 2021.

entering the next stage of their demographic transition, i.e., a substantial decline of fertility. Sub-Saharan Africa (SSA), in particular, which accounts for 33 LDCs, needs to reduce high levels of fertility in order *inter alia* to capture a first demographic dividend and reach the status of an emerging market economy (Groth & May, 2017; May & Guengant, 2020). Different regions thus have different demographic realities, and therefore require different population policies to meet their goals.

Recent decades have seen significant new developments, and renewed concerns, in the area of population and development.<sup>3</sup> The increasingly clear impact of global climate change has given new credence to linkages between population growth and the environment, although it could be argued that population issues have been given a short shrift in these discussions (Bongaarts & O'Neill, 2018). The current COVID-19 pandemic has rekindled fears about future epidemics and their devastating economic, social, and demographic consequences. The world has also turned a corner, with the majority of mankind now living in urban centers, and the size of those centers – from megacities of over ten million people to integrated metropolitan clusters with populations over 40 million – creating unprecedented human densities, accompanied by the danger of the growing number of people living in slum areas. Rapid population growth (in some parts of the world) and the ‘youth bulge’ (when those aged 15–29 represent more than 40% of adults ages 15 and over) have given a new impetus to worries about the ‘demographic security’, given the historical association between younger populations, political instability, and political radicalism. All of these trends will render more difficult the reduction of poverty and inequality (including gender inequality), the two issues that have recently gained preeminence in the international development agenda.

In addition to these issues in political economy, new bioethical issues have also emerged as

modern biotechnology has interfered increasingly with matters of human reproduction. The extension of human longevity has also triggered thorny dilemmas, as illustrated by the debates around the future of work, the care of the aging, and even euthanasia. Some consequences of our ability to intervene in matters of gender and mortality, in particular the selection of sex (usually before birth but sometimes through the neglect of the newborn), have already challenged traditional population and family policies.

All these elements call for a redefinition of the role and content of population policies and interventions. Population policies can no longer stand alone, but must be integrated with a wide range of development and social policies. In particular, future policies will need to sharpen their implementation mechanisms to increase their effectiveness in their full institutional context, with a focus on institutional settings, funding requirements, and new priority constituencies for policy interventions. This will require the collection of additional data, as well as renewed efforts in research and policy modelling.

This chapter first recaps the contemporary demographic landscape, highlighting the differences between the more, the less, and the least developed countries. Thereafter, the chapter discusses how the demands of population policy are complicated by the emerging global challenges of climate change and the environment as well as the new pandemics, along with rapid urbanization, concerns about ‘demographic security’, the alleviation of poverty and inequality, and the promotion of gender equality. The chapter also addresses the new bioethical and gender issues, as they pertain to fertility, sex selection, and increases in life expectancy. Finally, the chapter discusses ways forward and how to redefine population policies and interventions. Specifically, it examines the prioritization of policy interventions, the building of a policy consensus, the selection of priority constituencies (i.e., women, adolescents and youth, old people, and migrants), the institutionalization and funding of policies, and, last but not least, the promotion of evidence-based and research-driven policies.

<sup>3</sup> See Chap. 5: *Population, Development, and Policy* of this *Handbook* (Bongaarts et al., [this volume](#)).

## Contemporary Population Issues

The current demographic fragmentation of the world was highlighted in this *Handbook's* Chap. 1: *Contemporary Population Issues* (Goldstone & May, [this volume](#)). Demographic patterns and trends range from contexts of high fertility to situations of sub-replacement fertility, from very young populations to rapidly aging ones, and from immigration-open countries to immigration-adverse societies. This is essentially the result of the ongoing demographic transition process that has reached all corners of the globe, but at different times and at different paces in different countries (Dyson, 2010). However, to a large extent, this current demographic fragmentation is also the outcome of the various population policies and interventions that have been, or not been, implemented.

The demographic contrast is stark between the more developed (richer) countries, on the one hand, and the less developed (poorer) and least developed (poorest) countries, on the other hand. In the more developed countries, fertility (estimated at 1.5 children per woman on average in 2020) is no longer high enough to ensure the replacement of generations, which will lead (and in several countries already has led) to depopulation. On the contrary, the less developed countries and especially the LDCs still had fertility well above replacement level in 2020, at 2.4 children per woman on average (and at 4.7 children per woman in sub-Saharan Africa), which fosters their population growth (United Nations, 2019b; Population Reference Bureau, 2021). These fertility differences also provide great contrasts in age structures. Typically, young people (i.e., below age 15), represent just 16% of the total population in the more developed countries, whereas their proportion would be 27% in the less developed countries and 39% in the LDCs (Population Reference Bureau, 2021). In 2050, the more developed countries will see their old-age dependency ratio (i.e., the number of old people relative to working-age adults) increase to 46.4 people 65+ per 100 people age 15–64 (United Nations, 2019b). Conversely, the less developed countries, and especially the LDCs,

will need to address their ‘youth bulge’, and a paramount challenge for these countries will be the creation of jobs for ever-larger cohorts of youngsters.

Some demographers have defined the vast gulf in birth and death rates among the world’s countries as the global ‘demographic divide’ (Kent & Haub, 2005). The concept of the global demographic divide does challenge the global convergence theory of demographic trends across the globe, which had been proposed in the first decade of the twenty-first century (Wilson, 2011). The proponents of the global demographic convergence based their analysis on the improvement that had been observed between 1950 and 2000 in health and income in the developing world, as well as mortality and fertility trends (albeit more rapidly and unambiguously in fertility than in mortality). Since 2010, however, the “catching up” of the lower income countries with the richer ones has slowed, and for some the gap in fertility has stabilized or grown larger. However, this demographic gap is not a simple divide that perpetuates the *status quo* among the have and the have-not countries. Future demographic trends will be crucial in determining all these countries’ prospects.

Two demographic trends pertaining to mortality and fertility may either aggravate or alleviate the demographic divide in the years to come. Mortality conditions contrast sharply between the less and the more developed countries, as well as between men and women in both groups of countries. The poor countries have generally higher crude deaths rates and lower life expectancies at birth than the rich countries. Most countries in the world – even the richest – are still experiencing a decline of mortality, which may increase the natural rate of demographic growth because more people are surviving. However, the pandemic of the COVID-19 disease, caused by variants of the novel coronavirus, may temporarily set back recent gains on mortality, especially if the newer virus variants are proving more transmissible and more dangerous.

Today, mortality in some nations is showing surprising trends, demonstrating that income alone is not the sole determinant of life

expectancy. As of the Summer of 2021, mortality from COVID-19 was highest in southern Europe and Latin America, not in the significantly poorer countries of Africa and South Asia (though some of this may be due to reporting issues). Moreover, some of the more developed countries have also experienced a worsening of their life expectancies at birth and greater gender inequality with respect to mortality. The example of Russia comes to mind, where alcoholism, disease, and accidents explain past increases of adult mortality rates and contribute to the overall Russian trend towards depopulation (May, 2012). The United States has also experienced an increase in adult mortality, especially male adult mortality from suicide, drug overdose, and alcoholism, as social and economic circumstances are making life harder for the working class and for adults without a college education. This phenomenon has been called a rise in ‘deaths of despair’ (Case & Deaton, 2021). The United Kingdom has also seen a slight decline and then stagnation of life expectancy since 2015. Today, there are more deaths than births in several of the more developed nations, leaving immigration as the only possibility to counterbalance negative population growth in these countries.

The second demographic trend of note is the continuation of the fertility decline which, however, has been considerably uneven across the world because fertility appears to “*have been less consistently linked to development than have other variables*” (Dorius, 2008: 534). High levels of fertility have dropped very rapidly in most of south Asia and Latin America with economic growth, but have not done so in many countries in the Middle East, some in South Asia, and in most of sub-Saharan Africa. Past high levels of fertility and young age structures have also contributed to population momentum, which accelerates demographic growth. The significant population growth that will happen in countries with high fertility levels will necessitate enormous investments in order to build the human capital, develop the economy, and create jobs for the youth. In this respect, some comparisons are sobering. Pakistan, for instance, which has the fifth largest population in the world, has *more* children under age 15 than the

US, which has the third largest population in the world. By 2050, some countries situated in the Sahel will have populations comparable to current mid-size European countries, such as Spain or Poland; Niger’s population might even surpass Italy’s in 2050 (Population Reference Bureau, 2021). With large Sahelian populations living on fragile ecosystems, one can only expect the advent of repetitive food crises as well as massive migratory movements, not to mention political instability. Moreover, some countries, like Haiti, might experience a collapse caused by a combination of population growth, fragile environmental conditions, natural disasters, and poor governance.

In many of the more developed countries, persistently low fertility rates, which have been further depressed by the COVID-19 pandemic, may jeopardize the financial security of their elderly population as well as the sustainability of their socioeconomic model. In these mostly wealthy countries, birth rates are so low that population decline is all but guaranteed. As their average life expectancy at birth extends past age 75, these countries also face rapid population aging. While demographers once expected fertility in the most developed countries to naturally bounce back to levels at or near replacement, many of the countries that have completed their demographic transition have instead remained at very low levels of fertility, of 1.5 or fewer births per woman. Germany, Japan, Russia, and South Korea (the latter with a fertility rate *below one* in 2020) face depopulation on a large scale, which is sometimes aggravated by negative population momentum triggered by past decades of low fertility. Inevitably, very low fertility countries will also experience shrinking labor forces and this portends major difficulties to meet pension requirements and long-term healthcare programs for the elderly.<sup>4</sup> Immigration trends will also change because immigrants will be needed to

<sup>4</sup> In this *Handbook*, old age issues are covered in Chap. 25: *Population Aging and Public Policy* (Mudrazija & Angel, [this volume](#)); pension issues are analyzed in Chap. 26: *Pension Policies* (Turner, [this volume](#)); and healthcare issues of elderly populations are highlighted in Chap. 4: *Population, Burden of Disease, and Health Services* (Turbat et al., [this volume](#)).

replenish depleted labor forces. Illegal immigrants might also settle in territories that are too vast to be managed by dwindling native populations (e.g., Siberia). Population policies in very low fertility countries will need to tackle three types of issues, namely below-replacement fertility, population aging, and immigration. Yet they will do so in difficult circumstances: policies addressing low fertility levels may be fraught with human rights abuses (Scigliano, 2021) and older citizens seem particularly sensitive to, and more inclined to oppose, large numbers of immigrants.

While the more developed countries are forced to grapple with having fewer and fewer young people, the less developed countries face precisely the opposite problem, as the decline of fertility has been slower than anticipated in many less developed countries and particularly in the LDCs (Bremner et al., 2010). Many of these countries continue to experience rapid population growth, which is caused by mortality decline, high fertility, and population momentum. This situation exacerbates poverty by reducing land and capital per person, triggers migration, and threatens the environment, as can be seen in several LDCs.

In particular, for most of sub-Saharan Africa population growth rate has remained at about 2.5% per year over the past half century, a dynamic rate that produces a doubling of population with each generation (May & Guengant, 2020). Benign neglect from African leaders and elites have translated into late and ineffective population interventions in the region (May, 2017a; May & Guengant, 2020). In most of the continent, family planning programs are still weak (Jacobstein et al., 2009), although change could be coming (Adserà, 2020; Olson & Piller, 2013). As a result, the sub-Saharan Africa started its fertility decline about 35 years after the other less developed countries (May & Guengant, 2020). In addition, a considerable number of African countries, like Kenya and Ghana, have experienced fertility stalls (Bongaarts, 2006; Howse, 2015). Overall, the slow fertility decline in SSA will translate into a very substantial population increase in the twenty-first century (United

Nations, 2019b). Consequently, the 33 sub-Saharan LDCs have not been able to muster the resources needed for their human capital investments (e.g., education and health), which partly explains the widespread and pervasive levels of poverty in this part of the world (Beegle & Christiaensen, 2019). These countries might also experience severe food shortages, especially as climate change impacts vulnerable countries in the region (Torrey, 2010).

In several less developed countries, population policies and interventions have played a key role in reshaping their future demographic trajectories. In the 1960s, countries in Latin America and the Caribbean and, particularly in Asia, adopted effective population policies and interventions, including strong family planning programs. As a result, most of these countries were able to reduce their fertility levels and population growth rates, often by half or more within a few decades. This enabled many less developed countries to proceed with important human capital investments, which helped improve their socioeconomic development prospects.

In part because of the successes of family planning programs in many less developed countries and regions – with fertility falling to 2.5 or less children in most of Latin America, North Africa, South and East Asia – international attention has shifted to other urgent issues, such as the HIV/AIDS and COVID-19 epidemics, humanitarian crises caused by natural disasters, and good governance. Recent concerns about climate change have further pushed aside considerations regarding the demographic dimensions of socioeconomic development. Nonetheless, it is within the broader context of these emerging global challenges that the more, the less, and the least developed countries will need to tackle their demographic patterns and trends.

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## Emerging Global Challenges

Today, two major issues are on the forefront of international policy discussions: climate change and the emergence of dangerous new epidemics.

These two issues are linked to other challenges, such as rapid urbanization, the security dimensions of demographic trends, and the efforts to alleviate poverty and reduce inequality (including gender inequality). In addition, climate change and emerging epidemics, and their related challenges pose great threats to the overall goal of eventually achieving the three main dimensions of 'sustainable development', i.e., social, economic, and environmental, a theme that was broached in Chap. 35: *Demographic Sustainability* of this *Handbook* (Hara, [this volume](#)).

With respect to climate change and the environment, it is generally acknowledged that the industrial production that has supplied human consumption has resulted in emissions of greenhouse gases that are contributing to the warming of the planet. It is estimated that 80% of carbon dioxide emissions result from industrial activities, the rest coming from increased land use. According to the Intergovernmental Panel on Climate Change (IPCC), temperatures and sea levels are expected to rise, possibly by 1.1–6.4 °C and 28–79 cm, respectively, by the year 2100 (Stephenson et al., 2010). The most recent estimates put the global temperature rise at 1.1 °C since the Industrial Revolution (1.6° over land, .9° over oceans), with 1.5 °C to be reached in year 2040 unless the world economy rapidly abandons the use of fossil fuels (Intergovernmental Panel on Climate Change, 2021). Moreover, the climate of the planet is increasingly volatile, with extreme weather patterns, floods, heatwaves, droughts, and wildfires becoming more frequent and harsher. This is illustrated, for instance, by the catastrophic floods that occurred in Western Europe and Henan, China in 2021, and the unprecedented heatwaves in the Western USA, Greenland, and Siberia the same year.

As already mentioned, the debate about global climate change has given increased credence to the linkages between rapid population growth and the environment. This has been addressed in Chap. 6: *Population Dynamics and the Environment: The Demo-climatic Transition* of this *Handbook* (Barbieri & Pan, [this volume](#)), which explores the linkages between both the

demographic and the climatic transitions. However, it can be argued that the population factor is still being neglected in discussions about the environment. In their seminal paper, Bongaarts and O'Neill (2018) address four misperceptions they believe confound the IPCC, as well as many other people in the climate change community, on the population issue. These misperceptions are that population growth is no longer a problem, that population policies are not effective, that population does not matter much for climate, and that population policies are too controversial to succeed.

The more developed countries are not immune to the devastations brought about by climate change, as exemplified by the recurrent heatwaves, wildfires, and droughts in North America, the catastrophic floods in Europe and Asia (e.g., Japan). However, it is the populations of the less developed countries and the LDCs that are more vulnerable to the challenges of climate change because of their socioeconomic characteristics (i.e., their greater reliance on agriculture and fewer resources available for disaster relief) (Stephenson et al., 2010).

In poor countries, where population is growing rapidly and where a large proportion of the population still depends on agriculture for subsistence, an increasing number of people are exposed to unpredictable rainfall, floods, or droughts (e.g., the dramatic floods in Pakistan in 2010). Many countries face a scarcity of cultivable land as well as losses in agricultural productivity caused by rising temperatures. This has led to increasing levels of poverty, malnutrition, famine, and loss of livelihood, particularly in places like the Sahel (Kandji et al., 2006). These factors have also increased out-migration push factors, creating displaced populations. Many governments in poorer countries lack the expertise and available capital for adaptation, which is necessary to mitigate the negative effects of climate change and natural disasters (African Development Bank, 2008).

In addition to acute weather disasters, cumulative environmental degradation is a major problem in many less developed countries and LDCs, with considerable effects on agricultural

production, economic growth, and the livelihood of the poor (African Development Bank, 2008). In several of these countries, deforestation is extensive, soil erosion contributes to desertification, ecosystems are compromised, destruction of habitat leads to losses of species, and coastal defenses are threatened. In low-lying states such as Bangladesh, rising sea levels (increasing the salinity of soils), especially when combined with extreme weather events (e.g., tornadoes and storms), have devastating effects, to the point of being considered threats to security (Agrawala et al., 2003).

In countries where population density is high and weather conditions are volatile, the damage wrought by extreme weather events can be catastrophic. Ambitious development plans have required the clearing of forests as well as more intensive use of land. For short-term gains, such activities degrade the long-term value of the land (often irreversibly), and can alter regional weather patterns as well as fueling carbon and methane emissions, so that sustainability is compromised. Furthermore, rapidly growing population and higher population density, when combined with such environmental deterioration, can exacerbate the effects of natural disasters. For example, extending building into forests increases the risks of fires, which by clearing the slopes of timber makes them more susceptible to devastating mudslides when rains return.

Turning to the second emerging global challenge, the COVID-19 pandemic, which started in 2019, has rekindled fears about future epidemics and their wide-ranging economic, social, and demographic consequences. It is still too early to assess the multiple consequences of the COVID-19 pandemic, especially as new virus variants may bring new waves and prolong the duration of the crisis despite the availability of relatively efficient vaccines. However, it appears at this juncture that the COVID-19 crisis will increase mortality, decrease fertility (as couples may postpone births), disrupt international migration patterns, and probably slow down the ongoing process of globalization. Moreover, the crisis will have huge implications for healthcare systems, macroeconomies, labor markets,

inequality, and technology. The consequences of COVID-19 will be profound and durable and will be felt around the world for many years to come, including in the areas of geopolitics as well as financial and commodity markets. In addition to fighting the current COVID-19 outbreak, a crucial issue for the future will be how to prepare the world for other pandemics, which might prove even more lethal than COVID-19.

In this respect, some lessons can be gleaned from the HIV/AIDS epidemic. Although the effects of the HIV infection have been somewhat mitigated thanks to the massive deployment of drug therapies, the search for an HIV/AIDS vaccine has proven all but elusive—a sharp contrast with what happened recently for COVID-19. The fight against HIV/AIDS also led to some strategic decisions that also brought about some adverse consequences. One decision was to very generously fund the fight against the epidemic, which was perceived at the time as a public health urgency, thereby severely defunding other social programs, including population and family planning interventions (Speidel et al., 2009). Indeed, HIV/AIDS offers a good example of a cause defended aggressively by its advocacy community, i.e., networks of individuals and organizations engaged in the fight against the disease. Their portrayal of the importance of the issue helped muster nearly half of international donors' resources devoted to health, as compared to the 5% mortality and morbidity burden of HIV/AIDS in middle- and low-income countries (Shiffman, 2009; Shiffman et al., 2009).

The challenges posed by climate change and the emerging pandemics could be compounded by the phenomenon of rapid urbanization and the increase of slum dwellers in poor countries. The environmental footprint of the large cities and 'megacities' (defined as urban areas of ten million people or more) is known to be greater than the environmental impact of the less populated rural areas. In addition, large cities and megacities and their slum areas, with very high population densities, may accelerate the transmission of new viruses and other diseases.

Indeed, a significant feature of the second half of the twentieth century has been the rapid pace



and extensive reach of global urbanization. It is estimated that 55% of the world's population resided in urban areas in 2018 (though definitions of urban areas vary considerably across the world and some rural areas may also be reclassified as urban). In 1950, just 30% of the world's population was urban; it is now expected that more than double that percentage, or 68% of the world's population, will live in cities in 2050. To be sure, some cities in low-fertility countries have experienced a population decline, and economic contraction and natural disasters have contributed to population losses in other cities (United Nations, 2019c). Nonetheless, the rapid growth of cities in the middle- and low-income countries will continue to drive global urbanization.

Today, Northern America is the most urbanized region in the world, with 82% of its population living in urban areas in 2018. It is followed by Latin America and the Caribbean (81%), Europe (74%), and Oceania (68%). The level of urbanization in Asia is now almost 50%. Finally, Africa remains mostly rural, with 43% of its population living in urban areas, but that is a huge increase from 14% in 1950, and Africa is projected to attain 60% urban population by 2050 (United Nations, 2019c). The UN Population Division estimates that the world's rural population has grown slowly since 1950 and is expected to reach its peak in a few years. In 2018, the global rural population was close to 3.4 billion people; it will rise slightly and thereafter decline to around 3.1 billion people by 2050, while urban populations will drive future global population growth. Nearly 90% of the world's rural population is to be found in Africa and Asia. India has the largest rural population, followed by China (United Nations, 2019c).

Cities are also growing larger. In 2018, almost half of the world's urban population lived in cities with fewer than 500,000 inhabitants, and around 13% lived in 33 megacities. In 2030, the world should have 43 megacities, most of them located in the less developed countries and the LDCs. Tokyo is the world's largest city with 37 million inhabitants, followed by Delhi (29 million), Shanghai (26 million), and Mexico City and São Paulo (each about 22 million). Cairo, Mumbai,

Beijing, and Dhaka all have close to 20 million people (United Nations, 2019c).

The process of urbanization, though a product of economic development, can also bring negative outcomes.<sup>5</sup> In many less developed countries and LDCs, a major issue is the rural-urban divide, which fosters inequality between the urban and rural sectors. This is often related to what is called the "urban bias" or "agricultural squeeze", i.e., the notion that urban areas benefit from more investments and that resources, as well as capital, are concentrated there at the expense of rural areas. Rural areas can be put at a disadvantage and therefore can face difficulties in sustaining development. As a result, agricultural populations are eventually "squeezed" out of rural regions. From this perspective, rapid urbanization can be a significant factor in the persistent poverty and marginalization of those living in rural areas.

Another issue is the development of slums (also called shantytowns) in the large cities and megacities. These disadvantaged areas are characterized by non-durable or overcrowded housing. Slum dwellers lack access to improved water and sanitation as well as security against eviction. In addition, slum dwellers face greater exposure to environmental hazards (e.g., pollution) and consequently suffer increased health risks. The majority of those living in slums are located in three regions: Eastern and Southeast Asia, Central and Southern Asia, and sub-Saharan Africa (United Nations, 2019c).

Over the past 15 years, however, governments in the less developed countries and the LDCs have been able to improve urban slums, moving millions of people out of substandard living conditions. As a result, the proportion of the world's urban population living in slums declined from 28.4% to 22.8% between 2000 and 2014. Nonetheless, these efforts still lagged behind the rate of urban population growth, and the absolute number of people living in slums has increased. Sustainable development will depend on the

<sup>5</sup> Policies pertaining to urban areas are covered in Chap. 18: *Population and Health Policies in Urban Areas* of this *Handbook* (Vučković & Adams, [this volume](#)).

successful management of urban growth, especially in the less developed countries and the LDCs (United Nations, 2019c).

In addition to economic concerns, population growth is also linked to political risks (Goldstone et al., 2014). Rapid population growth (in some parts of the world) and the ‘youth bulge’ have given a new impetus to worries about the nexus demography and security, especially in low-income countries. A young age structure, rapid population growth, and high population density are among the demographic dynamics that tend to exacerbate social, economic, and environmental problems, which can contribute to instability. Younger populations are also more inclined to back radical ideologies and engage in political violence in times of distress or government performance failures (Urdal, 2012). In recent decades, violent outbreaks and armed conflict have primarily occurred in less developed countries and LDCs with poor human development indicators, fragile economic performance, and important inequalities (including gender inequalities). It has been also suggested that poor countries are more likely to degenerate into conflict than rich ones (Duffield, 2005).

A young population in a low-income country is often confronted with saturated labor markets and soaring un- and underemployment (as most jobs are to be found in the informal sector). According to Collier et al. (2003), the ‘youth bulge’ is especially challenging in countries with deteriorating economies with low incomes and unequal wealth distribution and that are dependent on primary commodities. Having a high proportion of discontented youths with extensive grievances and few alternatives, especially in an unequal society, can motivate violence and insurgency. This suggests that young populations could function as a stressor of grievances and potential conflict under some circumstances (Sciubba, 2010; May, 2021).<sup>6</sup> In several SSA countries, frustrated unemployed young men and the general social crisis have triggered violent conflicts (e.g., in the Sahel).

Finally, the challenges of climate change and emerging epidemics will render more difficult the reduction of poverty and inequality and the promotion of gender equality, an issue that has recently gained more attention in the international development agenda. Poverty embodies much more than income and material necessities for well-being because it shapes limitations, opportunities, and therefore prospects of human development, at both individual and societal levels. Access to education, health, and capital are some of the key resources for advancement that are often out of reach for the less privileged (Anand & Sen, 1997). Significant focus on providing access to services and supporting income-generating activities are priorities to reduce both the level and the depth of poverty.

Global inequality is a relatively recent topic and research in this area began in the 1980s (Milanovic, 2006). Inequality and inequity are more entrenched than most would expect. Where we are born defines, 80% of the time, the income we receive, and luck and/or efforts are likely to account for less than one-fifth of income variability. Circumstances at birth still determine opportunities and prospects, from the level of education of one’s parents to one’s gender, ethnicity, disability, and social class (Milanovic, 2009). Certain demographic dynamics, such as rapid population growth, high child dependency ratios, and large (and often multi-generational) households are all associated with, and appear to help sustain, high levels of poverty. Such population dynamics tend to feed into existing inequities and gender imbalances, which can make poverty difficult to escape and can even deepen it. Therefore, a daunting challenge will be to develop and implement population policies that help reduce poverty and inequality levels and promote gender equality within the broader context of climate change, emerging epidemics, and rapid urbanization.

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## Bioethical and Gender Issues

New bioethical and gender issues have arisen in the recent decades, and are addressed in Chap. 33:

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<sup>6</sup> See also Chap. 34: *Population and National Security* of this *Handbook* (Sciubba, [this volume](#)).

*Bioethics, Sex Selection, and Gender Equity* of this *Handbook* (Rahm, [this volume](#)). The most dramatic developments have occurred in the area of assisted human reproduction. These have helped to foster the agenda of reproductive rights, as individuals and couples have the right to freely decide the number and spacing of their children, including the right to have access to contraception and infertility services. In some countries, however, recent trends of sex selection at birth have brought disequilibrium to the sex balance. Significant increases in human longevity – including those that may be forthcoming with future advances – have raised another set of ethical issues.

In recent decades, human reproduction has increasingly been impacted by modern biotechnology, and reproductive technology has become more complex. Most assisted reproductive procedures involve manipulations of the gametes, i.e., sperm and egg (ova), including the techniques of artificial or *in vitro* insemination (Mastroianni, 2003). The development of the procedures of assisted reproductive technologies (ARTs) “has occurred at a breathtaking rate” (Mastroianni, 2003: 851). Advances in ARTs have broadened individual reproductive choices. Infertile women have been given the opportunity to conceive, and so have men with sub-fertility or even the absence of spermatozoa, by using their own genetic material or genetic material from donors.

In the process, however, societal norms have been strained. Reproductive technologies have raised ethical discussions because “*ethicists do not agree on the moral status that human embryos deserve*” (Dickens, 2003: 852). A host of new technical and legal issues have been raised with respect to reproductive technology including, but not limited to, the legal status of children, the rights of sperm and egg donors (for instance, can donors remain anonymous?), as well as the *oldest* reasonable biological and legal age of parents and donors. At this stage, it appears that the macro-demographic impact of the new reproductive technologies is still limited. Although several million children have been conceived

using reproductive technologies since the first such birth in 1978, babies conceived in this way still represent a small fraction of all births (about 4% in countries, like Denmark, where ARTs are used to the greatest extent; see May, 2012).

Another issue, namely the sex selection of children before birth, could have far-reaching demographic consequences. Sex selection creates serious imbalances between the sexes among the newborns. Sex selection of fetuses, which most often enables parents to eliminate potential baby girls, has triggered what has been called a *gendercide*. This has led to an epidemic of “missing” girls. Based on comparing historic sex ratios at birth with recently observed ratios in some countries, a large number of expected newborn infant girls have not been born or have disappeared. Apart from being a gross violation of human rights, this type of gender-selection has many social and economic repercussions. The phenomenon has taken on major proportions because of the sheer demographic size of countries that have been most affected, particularly in East and Southeast Asia (May, 2012).

In addition to reproductive technology, recent decades have brought about major increases in human longevity, which have resulted from better healthcare and hygiene, improved living conditions, socioeconomic prosperity, and medical and technological innovations. These new trends have opened new avenues in the ethical debate. As more people survive to an age where they suffer from chronic debilitating disease, the issue of euthanasia arises, defined as “*the intentional taking of a person’s life from a beneficent or kind motive – typically in a case of grave and terminal illness*” (Frey, 2003: 323). Increasingly, however, the concept of euthanasia has also come to cover cases when a person, although gravely ill, is not threatened by immediate death but seeks to die to end major suffering and terrible living conditions. Moral considerations on euthanasia are largely determined by the fact that quality of life can deteriorate massively, especially at the end of life. In the debate on euthanasia, the main ethical issue is the judgment that one can make on the worthiness of other people’s life.

Discussions on euthanasia usually distinguish between active and passive euthanasia, where the passive form implies omitting steps to save a life or stopping treatment altogether. There are also voluntary, involuntary, and non-voluntary forms of euthanasia, depending on whether steps are taken with the consent of the patient, or not. Non-voluntary euthanasia refers to the situation where medical and legal authorities deem a patient incapable of making decisions about his or her own life. A distinction is also made between physician-assisted suicide and euthanasia, whether the last causal factor is the patient or the doctor, respectively (Frey, 2003). Finally, euthanasia raises also thorny legal problems that cannot be resolved easily.

In addition, as life expectancy and working age are extended, other ethical issues arise. If the “normal” human lifetime becomes a century, as we are now approaching and may reach within the next generation or two, what will that mean? How long should people be expected to work, and how long should they expect governments to provide pension and healthcare?

To conclude, it is expected that other biotechnologies, such as human cloning (the creation of a genetically identical copy of an existing or previously existing human), could make the ethical dimensions of reproductive technology even more complex. With respect to the longevity of human life, stem cells research (a technology that focuses on using undifferentiated cells therapeutically to treat human disease and injury) will add new dimensions and difficulties to these ongoing ethical discussions (May, 2012).

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## The Ways Forward

Today, population policymakers are confronted with a larger range of demographic issues as well as a much more complex set of challenges than ever before, including demographic fragmentation, climate change, emerging epidemics, rapid urbanization, demographic security, poverty, inequality, and ethical and gender issues. Consequently, it is necessary to re-examine the

relevance, the content, and implementation mechanisms of population policies and interventions.

The linkages between population issues, on the one hand, and all these concerns, on the other hand, may not be immediately apparent. Moreover, it remains unclear how much leverage population policies and interventions will have in addressing these specific challenges. Therefore, it is crucial to examine the linkages between population issues and the emerging global challenges and to demonstrate how these challenges can be influenced by population policies and interventions. Addressing population issues can contribute to making progress on a specific challenge, whereas neglecting population issues will weaken the effectiveness of the efforts to address this challenge.

The overall context of population policies and interventions has also changed in recent decades.<sup>7</sup> In addition to the actors of the public sector, who have traditionally been active in the area of population and family planning, a vast number of agents of the private sector have also become active in population, family planning, and other social programs. Their work has been supplemented, and often funded, by a growing number of non-governmental organizations (NGOs) as well as foundations and transnational coalitions, as documented in Chap. 15: *Population Institutions and International Population Conferences* of this *Handbook* (Bernstein et al., [this volume](#)). As a result, a much larger number of actors and stakeholders are now involved in the design and implementation of any population policy intervention (May, 2012).

Moreover, new opportunities have arisen in recent years, such as the demographic dividend in the less developed countries and the LDCs. However, existing challenges have been exacerbated in the more developed countries but also in the less developed countries and the LDCs. These include, but are not limited to, rapid population aging in the more developed

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<sup>7</sup> See in particular Chap. 2: *Population Policies Framework* of this *Handbook* (Hardee, [this volume](#)).

countries and increasing international migration flows worldwide.

In the less developed and LDCs countries with high fertility, new opportunities for economic growth have arisen in recent decades, as discussed in Chap. 19: *Policies Needed to Capture Demographic Dividends* of this *Handbook* (Turbat, [this volume](#); see also Groth et al., 2019). Indeed, it has become evident that in high fertility countries a rapid and significant decline in fertility can generate a demographic and economic window of opportunity. This has been called the ‘demographic dividend’, which can be defined as a potential economic surplus brought about by the demographic transition.

The concept of the demographic dividend has emerged from a closer examination of the demographic and economic evolution of East and Southeast Asian countries during the ‘Asian economic miracle’, which occurred between 1970 and 2000. A first demographic dividend was captured in these countries when their economy grew rapidly, thanks to rapid fertility declines which increased (relatively speaking) the numbers of workers and reduced (relatively speaking) the numbers of dependents, especially the young dependents. Therefore, these countries had additional resources to enhance the quality of their human capital, improving the productivity of the labor force and enabling governments to invest more in the economy and infrastructure. At the same time, these countries improved the status of women, and managed to include them into the labor force. Later, when the benefits of the first demographic dividend had been adequately saved and invested, the East and Southeast Asian countries started to enjoy a second demographic dividend from the returns on these investments (Lee & Mason, 2006; May & Guengant, 2020).

Nowadays, a key international public policy question is whether capturing a first demographic dividend could be replicated in sub-Saharan Africa, as the economic situation of the region has become more encouraging. However, several major hurdles remain for the SSA region, including far less optimistic economic forecasts in recent years. In particular, the COVID-19 pandemic will have devastating effects on the global

economy and will also likely have a strong negative effect on the SSA economies. In addition, it will be difficult to trigger fertility decline, particularly in rural areas, in a context of low female and male education attainment, gender inequality, and poor management capacity. Finally, African policymakers have often been reluctant to embark on vast programs of family planning in their countries (May, 2017a).

Contrary to high fertility countries, the more developed countries are dealing with the issues of sub-replacement fertility, population aging, and immigration. Unfortunately, these are three specific areas in which effective policies are harder to come by (May, 2012). Estimates for France show that between 1946 and 2051, in a scenario of low fertility, the decline in mortality will account for only a third of population aging (as measured by the proportion of people aged 60 and over; see Calot & Sardon, 1999). In fact, it is low fertility that triggers rapid population aging. Therefore, the more developed countries will have to give a much higher priority to fertility interventions if they wish to slow population aging (Demeny, 2011).

The more developed countries will also need to adapt to population aging, as it is unlikely in a world of working women that fertility will ever return to the high levels of the 1950s and 1960s. Some countries have already taken several steps in this area. For example, the United States is increasing step by step the retirement age; other countries have explicitly linked their retirement age to life expectancy. Several European countries are currently designing major pension reforms. The Netherlands and some countries in the Nordic region have pioneered part-time working arrangements and ushered in changes in gender roles, allowing more flexibility for child and elderly care. Other countries have also enacted measures to address specific labor-market needs through targeting highly skilled and/or less-skilled immigrants. The challenge will be to intervene in a comprehensive way through many policy levers in order to bring the desired societal and demographic changes (May, 2012).

International migration remains a central issue for the more, the less, and the least developed

countries. It has emerged as an important demographic trend since the early twentieth century, and has rapidly accelerated in the past decades. There were globally 272 million international migrants in 2019. Currently, international migrants (defined as people living for at least 1 year in another country than their country of birth) comprise 3.5% of the global population. In the North (North America, Europe, Japan, Australia, and New Zealand) almost 12 of every 100 inhabitants are international migrants, compared to only 2 in 100 in the South (the rest of the world) (United Nations, 2019a).

Contemporary international migration is facilitated by enhanced transportation and communication, allowing migrants to travel easily and benefit from established social networks in foreign countries. International migration flows have also been fostered by the process of globalization. However, the Global Recession of 2008 and, more recently, the COVID-19 crisis which started in 2019, have dampened international migration flows. Nonetheless, international migration is expected to continue increasing in the future due to inequalities (local, regional, global), economic disparities, and other pressures such as high population densities and/or situations of conflict.

International migrants are motivated by pull factors (which attract them to the destination countries) as well as push factors (which entice them to leave their country of current residence). However, other forces contribute to international migration as well. For instance, forced migration is a complex part of international (and regional or local) migration, yet generally refers to refugees forced across a border due to violence or conflict. One should add other features such as natural and environmental disasters (environmental refugees) and severe economic deprivation as significant engines of this type of migration.

Dealing with fast-growing forms of international migration is a significant concern for governments. Immigration crises – that is, a volume of immigration that creates political outcry and calls for efforts to limit population movements – have occurred in recent years, for example in Western Europe and on the Southern border of the United States. These crises were

triggered by political events in not-too-distant countries, e.g., Syria and Libya in the case of Europe, and Central America in the case of the US. Consequently, the more developed countries will need to define and implement comprehensive migration policies not driven simply by nationalist or xenophobic passions, while remaining aligned with democratically defined national interests (May, 2012).

The opportunities presented by the demographic dividend, the pressing challenges of population aging, and rapidly increasing international migration flows worldwide will compel population policymakers to reassess their priorities and sharpen their strategies when designing, implementing, and evaluating population policies and interventions.

When addressing future population policies and interventions, a major consideration will be to assess the policy environment, as well as examine the policy priorities in order to achieve sustainable development goals. Even the best-designed policies will not be effective unless they can win broad support and be successfully implemented. Thus, the greatest challenge of all will be to develop a more effective and integrated approach to the design, implementation, and evaluation of population policies and interventions (May, 2019). This overall objective should be pursued through five related efforts, namely (1) the prioritization of policy interventions, (2) the building of a policy consensus, (3) the selection of priority constituencies, (4) the institutionalization and adequate and secure funding of policies, and (5) a reliance on evidence-based and research-driven policies.

### **Prioritization of Policy Interventions**

As it was mentioned earlier in this chapter, demographic trends are determined not only by interventions on the specific demographic components (i.e., mortality, fertility, and migration) but also, and more importantly, by policies related to the various development sectors, e.g., education, health, gender, industrialization, women's empowerment, equity, and laws and

regulations. Therefore, policymakers need to assess the larger political environment in which they want to design, implement, and evaluate their population policy interventions. Moreover, the prioritization of the policy goals needs to take place within the broader context of sustainable development.

Population policies and interventions could be organized around a few clear and powerful concepts, such as the reduction of high levels of fertility, the principle of equality, the promotion of gender equity, the improvement of human capital, the alleviation of poverty, the protection of the environment, the regulation of immigration, or the support for and sustainability of an aging population. By promoting such strong goals and ideas, population policies may play the role of a social catalyst.

The choice of the priority policy goal will depend on the specific situation of each country. In high fertility countries (e.g., in the LDCs and SSA countries), the overall policy goal could be to reduce fertility levels in order to capture a first demographic dividend and eventually reach the status of emerging market economy. In low-fertility countries, the priority policy goal could be to try to increase fertility or to adapt to rapid population aging through the adoption of innovative retirement and health coverage policies. Countries receiving numerous immigrants may want to prioritize improving the integration of immigrants into their economies and societies. Countries with large populations and/or high population densities and a fragile environment (such as Brazil, Bangladesh, Indonesia, or Timor-Leste) may decide to alleviate the population pressure on the environment through fertility reduction and/or internal migration measures.

Once the overall policy goal is chosen, the implementation of policy interventions will need to involve the actions of a large number of policy actors and stakeholders, and these actors will need to intervene across the various development sectors as mentioned above. In addition, a strongly coordinated approach will be necessary to implement effectively the adopted policy and achieve its goal. The reduction of high fertility

levels will require countries to implement 'integrated' population policies, where different policy levers (i.e., entry points or instruments to implement a policy) are used toward a common policy goal. A crucial dimension here will be to capitalize on the *synergies* between various policy levers that complement and reinforce one another. Recently, this has been proposed for the SSA countries, in order to empower individual choice and accelerate the fertility decline in this region. Specifically, it was suggested policymakers try to harness the synergies among a set of four key policy levers: women's empowerment; female education; universal health coverage that includes provision for reproductive health services and family planning; and legal reforms (May & Rotenberg, 2020).

In the more developed countries, integrated population policies will be needed as well. Policy interventions in these countries are arguably more complex, and involve a larger number of stakeholders. Seniors will be a vocal group seeking attention for their issues; migration involves a huge number of domestic and international actors, agencies, and constituencies; and regional and generational differences will make it difficult to design policies with broad assent. Close coordination for the design and implementation of policy interventions will be necessary between the various actors of the public sector and the agents of the private sector and the community of NGOs. In short, the prioritization of policy interventions on the ground will need to be accompanied by coordinated actions of a large number of policy actors across a large number of development sectors.

### **Building a Policy Consensus**

Obtaining a consensus about the policy interventions to be proposed and implemented is one of the most pressing tasks of any policy reform. To be meaningful and efficient, population policies and interventions should be anchored in a broad consensus about the most important population issues facing the country, and how to address them. Identifying the most

common denominator to help justify a policy (e.g., addressing the couples' fertility desires or mitigating the effects of population aging) might be one way to achieve this goal.

Such a policy consensus is necessary to muster the goodwill and commitment of the various policy constituencies, namely political leaders, public authorities, policy stakeholders, the media, and the general public. In addition, one should enlist the support of demographers, political scientists, and intellectuals, whose contribution is important to inform the public debate and help design adequate policy responses. New policies will therefore have to become more consultative and participatory. The support of all these constituencies will also be necessary for the implementation of the policies, as well as their proper monitoring (May, 2012).

However, for a long time, population issues have been ignored in many countries, and particularly in Western Europe. There is often an absence of a rational debate that would help reach a consensus on population issues. Demographic problems are not analyzed in a pragmatic way, free of political or ideological agendas. The fact that information sources and relevant stakeholders (i.e., administrations dealing with population issues) are fragmented in many of the most developed countries makes reaching a consensus even more difficult (May, 2012).

Moreover, the climate around population policies and interventions can be contentious and divisive, and national discussions on population interventions have often been polarized. For instance, conservative and liberal ideologies have clashed sharply on reproductive health issues. Family planning programs had their heyday decades ago, but are less in vogue nowadays. Abortion politics in the US have taken their toll as well. Policy actors seem to be torn between a laissez-faire attitude, which is akin to carelessness, on the one hand, and a desire to address population issues decisively and proactively, on the other hand. Non-interventionists have been opposed by those who wish to take forceful action. Women's demands to be heard in shaping their health and gender issues has been fruitful, but also polarizing. Nonetheless, indifference and

lack of concern about demographic issues have often prevailed (Demeny, 2003). Malthusian attitudes, individualistic values and, occasionally, excesses of conservative ideologies have also played a role (Chesnais, 1995). For instance, many specialists in the more developed countries do not see the need to design policies to increase fertility. Interest in future population trends, which to be sure have a measure of uncertainty, has sometimes been dismissed as a "demographic obsession" (Le Bras, 1991). At the same time, other demographers and intellectuals have sought to raise alarm by highlighting dire scenarios should fertility remain below replacement levels in the more developed countries, for instance forecasting that an aging Europe would soon be overwhelmed by waves of immigrants (Caldwell, 2009). All these trends have pushed aside rational debate. The chapters in this *Handbook* are an effort to reground population policy debates in badly needed facts and rational discussion.

Overall, the attention to population issues has faded as newer concerns have appeared, including climate change and the new epidemics. In this context, it can be difficult to address the fundamental population issues, and particularly to address them not only over a long period of time but also with the constant attention they require (May, 2012).

### **Selection of Priority Constituencies**

New priority constituencies for population policies and interventions have been identified in recent years, and are discussed at length in Chap. 31: *Priority Groups in Population Policies* of this *Handbook* (Rotenberg, [this volume](#)). Specific groups have often been targeted and prioritized in development in order to implement comprehensive and effective policies. This is because these groups are usually significant in size and acknowledged to be essential for future socioeconomic development. Sometimes, however, it is also because these groups are marginalized and subject to discrimination. Priority constituencies that have been identified include women, adolescents and youth, seniors,



and migrants. These groups, which are key segments of the society and critical contributors to development in the long run, are the focus of population policies and interventions for different reasons and have different characteristics. Yet, a common element for all of them is that either they do not equally benefit from socioeconomic progress or are left out of mainstream development policies (May, 2012).

*Women* need to be given the strongest focus among the priority constituencies, with the goals of ensuring female empowerment and closing the gender gap (obviously, men must also be involved in these efforts). Women are now regarded as key actors of development and, as such, given priority in development strategies and programs (Gates, 2019). Even when repressed, women still play a preeminent role in the functioning of societies, and they often carry the majority of the workload in most less developed countries and LDCs. Yet women remain discriminated against, with fewer opportunities and rights. Too often, the most pervasive forms of discrimination, which prevent gender equity and women from living long, healthy, and fulfilling lives, are gender-based violence, including such harmful traditional practices as honor killings, female genital mutilation, and child marriage, as well as unequal economic opportunities and reproductive health outcomes (May, 2012).

*Adolescents and youth (age 15–24)* have emerged as another priority constituency. Adolescence is an important time during which life-defining experience is gained through education, relationships and peers, and employment. Youths are susceptible to unsafe sex, unplanned pregnancy, high un- and underemployment, and being deflected from meeting their potential or aspirations (Gribble, 2010; May, 2021). Adolescents and youth represent the future workforce and human capital of a society and, in the less developed countries and LDCs, adolescents and youth are an especially large demographic group, which is expected to keep increasing during the next several decades (United Nations, 2019b; May, 2021). In recent years there has been a push for greater investments in adolescents and youth as a means of enhancing development

(May, 2021). Fundamental elements to empower adolescents and youth include: education and vocational training, ensuring sufficient and adequate employment opportunities, protecting adolescents and youth from gender inequity and harmful practices, and ensuring their access to satisfactory health services.

*Seniors (60+)*, on the other end of the age spectrum, are growing in numbers in all countries, and population aging has emerged as a major concern. Thanks to gains in life expectancy, even if population growth slows down, as projected by the UN Population Division, the proportion of older people will continue to grow over the coming decades and old-age dependency will increase (United Nations, 2019b). While population aging is arguably the most pressing demographic concern in the more developed countries, it is also gaining importance in the less developed countries and the LDCs. In these countries, traditional family-based support systems for the elderly are weakening, and older people find themselves depending on social support as well as their own children and their own labor. These countries tend to have fewer mechanisms in place to support old people, ensure their well-being, and minimize the burden of old-age dependency. Old people are often a forgotten group in society, and they often experience low levels of social support and severe poverty. This reality is aggravated by other dynamics, such as changing labor market conditions and shifting household structures due to youth migration to urban areas (May, 2012).

*Migrants* are another vulnerable and often neglected group, both in the more and the less developed world.<sup>8</sup> Studies suggest that migrants are generally exposed to unemployment, poverty, and discrimination, and often have fewer rights, lower wages and opportunities, and unfavorable access to basic services. There are different types of migrants, with many who migrate for economic or family-related reasons, and others subjected to forced migration. Displacement and forced migration due to violence, conflict, or

<sup>8</sup> See Chap. 29: *International Migration Policies* of this *Handbook* (Brown, [this volume](#)).

insecurity is a major humanitarian issue. Refugees and displaced people are in difficult and unstable situations with regards to meeting basic needs as well as achieving durable solutions to their displacement. Interventions, namely voluntary repatriation, resettlement (asylum seeking), and local integration are complicated and only some of those displaced actually attain a durable solution. We know of many cases where asylum-seekers successfully settle and integrate into their host society (as with Vietnamese refugees who fled to the USA in the 1970s), but in other cases refugees may live in camps for decades or even generations (like many of the Palestinians driven from their homes in 1948). A key hurdle in the study of migrants is the lack of reliable and comparable data across the multitude of cases (Goldin et al., 2011). What is known is that the number of refugees is rising fast. The UN High Commission on Refugees estimates the number of displaced people passed 80 million in 2020, of which 27 million have left their country of birth (United Nations High Commissioner for Refugees, 2020). Finally, the rising hostility in some receiving countries has resulted in new laws and restrictions on migration. This has been accompanied by a growing wave of discrimination and xenophobia against immigrants.

The four main priority groups reviewed in this section should not be looked at independently, but rather holistically. The rationale is that women, adolescents and youth, old people, and migrants are not isolated but instead interact with each other. Finally, other priority groups could be identified for specific population policies and interventions. For instance, minorities and people with disabilities may also need dedicated policies and interventions.

### **Institutionalization and Funding of Policies**

The implementation of population policies and interventions requires the creation and/or the strengthening of appropriate population institutions, especially as the coordination of multiple policy actors and stakeholders will be

needed. Policies and interventions also must be adequately funded. These aspects are covered in Chap. 15: *Population Institutions and International Population Conferences* (Bernstein et al., [this volume](#)) and Chap. 23: *Funding of Population Policies and Programs* (Dutta et al., [this volume](#)) of this *Handbook*, respectively.

Population policies and interventions are implemented within the specific administrative settings of particular countries. Specific bottlenecks may hinder their implementation, such as poor administrative capacity and/or lack of sufficient infrastructure. The absence of a strong tradition of effective, impartial administration, as in many SSA countries, or the fragmentation of the institutional policy actors, as in some more developed countries, can pose severe impediments to the smooth implementation of policy interventions. An inadequate network of schools and public health facilities may also slow down the implementation of some programs. Rural areas, in particular, must be served by good roads and transportation infrastructure in order for services to be available. Efficient communication facilities are also crucial to enhance coordination of activities on the ground (May, 2012).

However, in some less developed countries and LDCs, the process of policy reform has occasionally been derailed because of excesses in the bureaucratic approach. The creation of multiple population institutions lacking a clear mandate, committed staff, and regular funding has not been conducive to the efficient implementation of policy interventions (May, 2012). In these countries, it can be argued that “*improved public population institutions will be crucial to foster the extension of family planning programs, implement a new generation of population policies, and monitor the population trends that may be conducive to opening a demographic window of opportunity and capturing a first demographic dividend*” (May, 2017b: 7). In one example of notable success, Bangladesh chose to partner with NGOs, notably BRAC, separate from its government, to provide health and development assistance to migrants, women, and rural communities (*Economist*, 2019).

Finally, inconsistent funding and shortfalls may hinder the implementation of population policies and interventions. Externally funded population policies and programs often have suffered from the volatility of international funding. Governments in less developed countries may not have enough resources to implement interventions, especially those that entail large physical and human capital investments, such as education and health or refugee resettlement. Fiscal space may be constrained and must exist or be created in order to mobilize additional resources for government spending. Fiscal space can be defined as the “*room in a government’s budget that allows it to provide resources or a desired purpose without jeopardizing the sustainability of its financial position or the stability of the economy*” (Heller, 2005: 32). In short, fiscal space is the long-term sustainability of short-term commitments. A government may create fiscal space by raising taxes, securing external grants, borrowing money (from its citizens and/or from external sources), borrowing from the banking system (therefore expanding the money supply), and/or by cutting lower spending priorities.

### **Promotion of Evidence-Based and Research-Driven Policies**

The collection of reliable demographic data remains of paramount importance when designing effective population policies. Chap. 16: *Data Collection for Population Policies* (Spoorenberg, [this volume](#)) of this *Handbook* reviews the ongoing efforts in this area. Indeed, it could be argued that the desire to know the population’s characteristics is the first step toward addressing population issues. In this respect, it is worth remembering the words of the late Dr. J. W. Lee (1945–2006), WHO Director-General, who said in 2004: “*to make people count, we first need to be able to count people*” (May, 2012: 120).

Traditional demographic data collection systems include population and housing censuses, vital registration systems, surveys, and population registers. Particularly in the less developed countries and the LDCs, regular

demographic and health and other surveys have supplemented census data and provided a bonanza of data on mortality, nutrition, fertility, contraception, etc., which have proven essential when designing new policies and monitoring their implementation. New technologies have also enabled researchers to improve traditional data collection systems and/or to mine and analyze new sources of data. Despite these efforts, additional demographic data still need to be collected and analyzed, particularly on international migration as well as on equality (including gender equality) and poverty issues.

The implementation of new policies and interventions will also have to integrate the results of ongoing analytical research and policy modelling. New research agendas need to be designed to foster ongoing research, for instance in the area of political demography (Sciubba, 2021). Better data could also help design new models of policy interventions and enhance their effectiveness. Chap. 22: *Population Policy Models* (Moreland, [this volume](#)) of this *Handbook* reviews some new policy models being developed, for example to assess the potential demographic dividends in the less developed countries and the LDCs.

Evidence-based population policies and programs have recently faced difficulties in many areas, whether in the fields of public health or population or climate and the environment. On the one hand, scientific evidence is sometimes viewed skeptically, or even dismissed in favor of ideological beliefs, as with COVID-19 or climate skepticism, with negative trends being dismissed as a “hoax”. On the other hand, policymakers sometimes make impossible demands for immediate evidence of program effectiveness and concrete results, in the name of efficiency and accountability. Yet without the patience to let programs have visible effects, vital programs may lose funding and support. The evaluation methodology for population policies and programs thus must be carefully designed to clearly demonstrate whether policies are making a desired impact, with attention to the relevant population groups and time-spans. Fortunately, the methods for evaluation have improved during

the past decades with the widespread adoption of randomized control trials or RTCs (Banerjee & Duflo, 2011), and as more data has become available. More resources have also been devoted to programs' monitoring and evaluation (M & E). These aspects are covered in Chap. 24: *Measuring the Effectiveness, Efficiency, and Impact of Population Policies* of this *Handbook* (Tarsilla, [this volume](#)).

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## Conclusion

To a large extent, population policies and interventions, or their absence, will determine the future demographic situation of human societies. They will also impact the broader trajectories of economics, politics, and the environment. The fulfillment of the Sustainable Development Goals (SDGs) covering the period 2015–2030 (several SDGs pertain specifically to reproductive health issues), will depend on successful interventions to modify demographic patterns and trends. For example, the attainment of global food security goals and improvements in nutrition levels in the less developed countries and the LDCs will be largely influenced by the success of population policies and interventions, as these food security goals are based on assumptions of declining fertility levels.<sup>9</sup> Overall, population policies and interventions, or the lack thereof, will also determine efforts to eradicate poverty and reduce other social and gender inequities (May, 2012).

In their heyday, population policies were aimed at improving mortality conditions and, especially, decreasing high fertility levels. Instruments of choice were vaccination campaigns and family planning programs, which were established around the world. Today, however, population policies need to address a host of new issues, including sub-replacement fertility, mortality sex differentials, population aging, international migrations, climate change, new epidemics, rapid urbanization, security

issues, as well as new bioethical and gender challenges. Policies also need to link population policies to other global policies, like the SDGs and alleviation of poverty and inequality (including gender inequality). In short, population policies need to work toward sustainable development across the demographic fragmentation of the world and a host of emerging global challenges.

Most demographic variables are amenable to change. Well-designed population policies and interventions can be both effective and cost-effective (efficient). In addition, results can be obtained over a relatively short period of time, say 10 or 15 years, and not only in the long term. Last but not least, population policies can and must be designed within the framework of Universal Human Rights, as population policies should be voluntary, non-coercive, and promote gender equity. To achieve this demanding agenda, population policies need to reinvent their *modus operandi* with the view of remaining relevant in today's ever-changing world. Far from being useless and old-fashioned, population policies and interventions are more relevant and needed than ever.

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## References

- Adserà, A. (2020). International political economy and future fertility trends. *Vienna Yearbook of Population Research*, 18, 27–32.
- African Development Bank. (2008). *Bank group Climate Risk Management and Adaptation Strategy* (CRMA); see [https://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/Climate%20Risk%20Management%20and%20Adaptation%20Strategy%20\\_CRMA\\_%20%282%29.pdf](https://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/Climate%20Risk%20Management%20and%20Adaptation%20Strategy%20_CRMA_%20%282%29.pdf). Accessed 4 Aug 2021.
- Agrawala, S., Ota, T., Ahmed, A. U., Smith, J., & van Aalst, M. (2003). *Development and climate change in Bangladesh: Focus on coastal flooding and Sundarbans*. Organisation for Economic Co-operation and Development.
- Anand, S., & Sen, A. (1997). *Concepts of human development and poverty: A multidimensional perspective* (Human Development Papers 1997). United Nations Development Programme.
- Banerjee, A. V., & Duflo, E. (2011). *Poor economics: A radical rethinking of the way to fight global poverty*. Public Affairs.

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<sup>9</sup> See Chap. 7: *Population and Food System Sustainability* of this *Handbook* (Mergos, [this volume](#)).

- Barbieri, A. F., & Pan, W. K. (this volume). Chapter 6: Population dynamics and the environment: The demographic transition. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Beegle, K., & Christiaensen, L. (Eds.). (2019). *Accelerating poverty reduction in Africa*. World Bank Group.
- Bernstein, S., Hardee, K., May, J. F., & Haslegrave, M. (this volume). Chapter 15: Population institutions and international population conferences. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Bongaarts, J. (2006). The causes of stalling fertility transitions. *Studies in Family Planning*, 37(1), 1–16.
- Bongaarts, J., & O'Neill, B. C. (2018). Global warming policy: Is population left out in the cold? *Science*, 361(6403), 650–652. <https://doi.org/10.1126/science.aat8680>
- Bongaarts, J., Gragnolati, M., Ahmed, S. A., & Corker, J. (this volume). Chapter 5: Population, development, and policy. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Bremner, J., Frost, A., Haub, C., Mather, M., Ringheim, K., & Zuehlke, E. (2010). World population highlights: Key findings from PRB's 2010 world population data sheet. *Population Bulletin*, 65(2).
- Brown, S. K. (this volume). Chapter 29: International migration policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Caldwell, C. (2009). *Reflections on the revolution in Europe: Immigration, Islam, and the West*. Doubleday.
- Calot, G., & Sardon, J. P. (1999). Les facteurs du vieillissement démographique. *Population*, 54(3), 509–552.
- Case, A., & Deaton, A. (2021). *Deaths of despair and the future of capitalism*. Princeton University Press.
- Chesnais, J. C. (1995). *Le crépuscule de l'Occident. Dénatalité, condition des femmes et immigration*. Robert Laffont.
- Collier, P., Elliot, L., Heger, H., Hoeffler, A., Reynol-Querol, M., & Sambanis, N. (2003). *Breaking the conflict trap: Civil War and development policy*. World Bank Group/Oxford University Press.
- Demeny, P. (2003). Population policy dilemmas in Europe at the dawn of the twenty-first century. *Population and Development Review*, 29(1), 1–28.
- Demeny, P. (2011). Population policy and the demographic transition: Performance, prospects, and options. In R. D. Lee & D. S. Reher. (Eds.). *Demographic transition and its consequences*. *Population and Development Review*, 37(Suppl.), 249–274.
- Dickens, B. M. (2003). Reproductive technologies. Ethical issues. In P. Demeny & G. McNicoll (Eds.), *The encyclopedia of population* (Vol. 2, pp. 852–854). Macmillan Reference USA.
- Dorius, S. F. (2008). Global demographic convergence? A reconsideration of changing intercountry inequality in fertility. *Population and Development Review*, 34(3), 519–537.
- Duffield, M. (2005). *Human security: Linking development and security in an age of terror*. Paper prepared for the GDI Panel 'New Interfaces between Security and Development', 11th conference of the EADI, Bonn, September 21–24, 2005; see [http://members.chello.at/intpol\\_gkc4/Duffield%202005b.pdf](http://members.chello.at/intpol_gkc4/Duffield%202005b.pdf). Accessed 8 Aug 2021.
- Dutta, A., Ward, K., & Sharma, S. (this volume). Chapter 23: Funding of population policies and programs. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Dyson, T. (2010). *Population and development: The demographic transition*. Zed Books.
- Economist*, The. (2019). How BRAC, the world's biggest charity, made Bangladesh richer. September 7; see <https://www.economist.com/international/2019/09/05/how-brac-the-worlds-biggest-charity-made-bangladesh-richer>. Accessed 29 Aug 2021.
- Frey, R. G. (2003). Euthanasia. In P. Demeny & G. McNicoll (Eds.), *The encyclopedia of population* (Vol. 1, pp. 323–325). Macmillan Reference USA.
- Gates, M. (2019). *The moment of lift: How empowering women changes the world*. Flatiron Books.
- Goldin, I., Cameron, G., & Balarajan, M. (2011). *Exceptional people: How migration shaped our world and will define our future*. Princeton University Press.
- Goldstone, J. A., & May, J. F. (this volume). Chapter 1: Contemporary population issues. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Goldstone, J. A., Marshall, M., & Root, H. (2014). Demographic growth in dangerous places: Concentrating conflict risks. *International Area Studies Review*, 17(2), 120–133.
- Gribble, J. (2010). *Investing in youth for national development* (Policy brief January 2010). Population Reference Bureau.
- Groth, H., & May, J. F. (Eds.). (2017). *Africa's population: In search of a demographic dividend*. Springer.
- Groth, H., May, J. F., & Turbat, V. (2019). Policies needed to capture a demographic dividend in sub-Saharan Africa. *Canadian Studies in Population*, 46(1), 61–72.
- Hara, T. (this volume). Chapter 35: Demographic sustainability. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Hardee, K. (this volume). Chapter 2: Population policies framework. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Heller, P. (2005). Fiscal space: What it is and how to get it. *Finance and Development*, 42(2), 32–33.
- Howse, K. (2015). What is fertility stalling and why does it matter? *Population Horizons*, 12(1), 13–23.
- Intergovernmental Panel on Climate Change. (2021). *Climate change 2021: The physical science basis. Contribution of working group I to the sixth assessment*

- report of the Intergovernmental Panel on Climate Change. Cambridge University Press.
- Jacobstein, R., Bakamjian, L., Pile, J. M., & Wickstrom, J. (2009). Fragile, threatened, and still urgently needed: Family planning programs in sub-Saharan Africa. *Studies in Family Planning*, 40(2), 147–154.
- Kandji, S. T., Verchot, L., & Mackensen, J. (2006). *Climate change and variability in the Sahel region: Impacts and adaptation strategies in the agricultural sector*. United Nations Environment Programme & ICRAF.
- Kent, M. M., & Haub, C. (2005). Global demographic divide. *Population Bulletin*, 60(4).
- Le Bras, H. (1991). *Marianne et les lapins: L'obsession démographique*. Olivier Orban.
- Lee, R. D., & Mason, A. (2006). What is the demographic dividend? *Finance & Development*, 43(3), 16–17.
- Mastroianni, L., Jr. (2003). Reproductive technologies. Modern methods. In P. Demeny & G. McNicoll (Eds.), *The encyclopedia of population* (Vol. 2, pp. 849–852). Macmillan Reference USA.
- May, J. F. (2012). *World population policies: Their origin, evolution, and impact*. Springer.
- May, J. F. (2017a). The politics of family planning policies and programs in sub-Saharan Africa. In J. B. Casterline & J. Bongaarts (Eds.), *Fertility transition in sub-Saharan Africa. Population and Development Review*, 43(Suppl.), 308–329.
- May, J. F. (2017b). The role of public population institutions on fertility outcomes in sub-Saharan Africa. *Population Horizons*, 14(1), 1–8.
- May, J. F. (2019). Chapter 34: Population policy. In D. L. Poston Jr. (Ed.), *Handbook of population* (2nd ed., pp. 875–899). Springer.
- May, J. F. (2021). Chapter 10: A research agenda for youth policies and investments. In J. D. Sciubba (Ed.), *A research agenda for political demography* (pp. 147–160). Edward Elgar Publishing.
- May, J. F., & Guengant, J. P. (2020). *Demography and economic emergence of sub-Saharan Africa*. Académie royale des Sciences, des Lettres et des Beaux-Arts de Belgique, coll. « Académie en poche », No. 134-EN.
- May, J. F., & Rotenberg, S. (2020). A call for better integrated policies to accelerate the fertility decline in sub-Saharan Africa. *Commentary. Studies in Family Planning*, 51(2), 193–204.
- Mergos, G. (this volume). Chapter 7: Population and food system sustainability. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Milanovic, B. (2006). *Global income inequality: What it is and why it matters*. In *Policy research working paper 3865*. World Bank Group.
- Milanovic, B. (2009). *Global inequality of opportunity – How much of our income is determined at birth?* (Development working group). World Bank Group.
- Moreland, R. S. (this volume). Chapter 22: Population policy models. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Mudrazija, S., & Angel, J. L. (this volume). Chapter 25: Population aging and public policy. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Olson, D. J., & Piller, A. (2013). Ethiopia: An emerging family planning success story. *Studies in Family Planning*, 44(4), 445–459.
- Population Reference Bureau. (2021). *2021 world population data sheet*. PRB.
- Rahm, L. (this volume). Chapter 33: Bioethics, sex selection, and gender equity. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Rotenberg, S. (this volume). Chapter 31: Priority groups in population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Scigliano, M. (2021). *Welcome to Gilead: Pronatalism and the threat to reproductive rights*. Population Matters; see <https://populationmatters.org/Welcome-to-Gilead-report>. Accessed 14 Jan 2022.
- Sciubba, J. D. (2010). *The future faces of war: Population and national security*. Praeger.
- Sciubba, J. D. (Ed.). (2021). *A research agenda for political demography*. Edward Elgar Publishing.
- Sciubba, J. D. (this volume). Chapter 34: Population and national security. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Shiffman, J. (2009). A social explanation for the rise and fall of global health issues. *Bulletin of the World Health Organization*, 87(8), 608–613.
- Shiffman, J., Berlan, D., & Hafner, T. (2009). Has aid for AIDS raised all health funding boats? *Journal of Acquired Immune Deficiency Syndromes*, 52(Suppl. 1), S45–S48.
- Speidel, J. J., Weiss, D. C., Ethelston, S. A., & Gilbert, S. M. (2009). Population policies, programmes and the environment. *Philosophical Transactions of the Royal Society*, 364, 3049–3062.
- Spoorenberg, T. (this volume). Chapter 16: Data collection for population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Stephenson, J., Newman, K., & Mayhew, S. (2010). Population dynamics and climate change: What are the links. *Journal of Public Health*, 32(2), 150–156.
- Tarsilla, M. (this volume). Chapter 24: Measuring the effectiveness, efficiency, and impact of population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Torrey, B. B. (2010). Population dynamics and future food requirements in sub-Saharan Africa. In P. Pinstrup-

- Andersen (Ed.), *The African food system and its interaction with human health and nutrition* (pp. 182–198). Cornell University Press in cooperation with the United Nations University.
- Turbat, V. (this volume). Chapter 19: Policies needed to capture demographic dividends. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Turbat, V., Gribble, R., & Zeng, W. (this volume). Chapter 4: Population, burden of disease, and health services. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Turner, J. A. (this volume). Chapter 26: Pension policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- United Nations. (2019a). *International migrants numbered 272 million in 2019, continuing an upward trend in all major world regions* (Population facts 2019/4). United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2019b). *World population prospects. The 2019 revision*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations. (2019c). *World urbanization prospects. The 2018 revision*. United Nations, Department of Economic and Social Affairs, Population Division.
- United Nations High Commissioner for Refugees. (2020). *Mid-year trends 2020*. UNHCR Data Center.
- Urdal, H. (2012). A clash of generations? Youth bulges and political violence. *International Studies Quarterly*, 50(3), 607–629.
- Vučković, M., & Adams, A. (this volume). Chapter 18: Population and health policies in urban areas. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Wilson, C. (2011). Understanding global demographic convergence since 1950. *Population and Development Review*, 37(2), 375–388.

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## General Conclusion

Jack A. Goldstone and John F. May

For most of history, governments sought to increase their population for labor, warfare, and taxation in the face of constant perils from disease, famine, and war. As these perils receded in the nineteenth and twentieth centuries, the focus shifted, with governments more concerned with their ability to provide jobs, food, housing, education, and welfare/pensions to rapidly growing populations, even seeking to slow the growth of population when needed to help them meet these demands (Goldstone & May, [this volume](#)).

Entering the twenty-first century, the challenges of population policies have shifted once more. First, in the more developed world, the chief task is adapting socioeconomic institutions to rapidly aging populations whose growth is slowing and will soon reverse, leading to labor shortages. Second, in the low- to middle-income countries, the main goal is taking advantage of declining fertility to capture a first demographic dividend that can jump-start their economic development and enable them to reach the status of emerging economies. Third, in the lowest-income countries, mainly in sub-Saharan Africa (SSA) and some parts of the Middle East and South Asia, where fertility rates remain quite high, gaining prosperity will require responding to unprecedented growth rates and the youngest populations yet seen in history. Moreover, shifting patterns of international and local

migration, with South-South migration growing in importance, Asia and Africa sending more migrants to Europe and the Americas, and urbanization taking off in less developed nations, continue to be major issues for rich and poor countries alike. Too much migration appears to lead to conflict and polarizing politics. On the contrary, too little migration leads to labor shortages and entrenches poverty where populations are not allowed to move (Goldstone & May, [this volume](#)).

The world is thus facing multiple and diverse challenges that require novel and creative population policies and interventions. Population policymakers are confronted with a larger range of demographic issues as well as a much more complex set of challenges than ever before, including demographic diversity, climate change, emerging epidemics (e.g., COVID-19), rapid urbanization, demographic security, poverty, inequality, as well as ethical and gender issues. The linkages between population issues, on the one hand, and these new concerns, on the other hand, may not be immediately apparent. Moreover, it remains unclear how much leverage population policies and interventions will have in addressing these new challenges. Consequently, it is crucial to examine the linkages between population issues and the emerging global challenges with the goal of demonstrating how these challenges can be influenced by population policies and interventions. It is also necessary to re-examine the relevance and content of recent and proposed population policies, as well as

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how these policies and other interventions can be most effectively implemented.

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## New Opportunities and Challenges

In the less and least developed countries with high fertility, new opportunities for economic growth have arisen in recent decades, as discussed in Chap. 19: *Policies Needed to Capture Demographic Dividends* of this *Handbook* (Turbat, [this volume](#)). Indeed, it has become evident that in high fertility countries a rapid and significant decline in fertility can generate a demographic and economic window of opportunity. This has been called the ‘demographic dividend’, which can be defined as the potential economic surplus brought about by the changes in age structure that accompany completion of the demographic transition.

Nowadays, a key international public policy question is whether capturing a first demographic dividend, as was achieved in the developing countries of Asia, could be replicated in sub-Saharan Africa. Several major hurdles remain for the SSA region, including less optimistic economic forecasts in recent years, as the transition from low-productivity commodity and subsistence agriculture-based economies to higher productivity manufacturing economies appears more difficult than expected (Rodrik, 2018). It will be difficult to trigger fertility decline, particularly in rural areas, in a context of low female and male education attainment, gender inequality, and weak systems for supporting rural family health. Finally, African policymakers have often been reluctant to embark on vast programs of family planning in their countries (May, 2017).

At the same time, the more developed countries are facing their own demographic challenges, as they must tackle the issues of sub-replacement fertility, population aging, and immigration. Unfortunately, these are three specific areas in which effective policies have proven hard to develop and implement (May, 2012). It is essentially very low fertility that triggers rapid population aging. Therefore, the more developed countries will have to give a much higher priority

to fertility-promoting interventions if they wish to slow population aging (Demeny, 2011).

However, it is unlikely in a world of working women that fertility will ever return to the high levels of the 1950s and 1960s. Therefore, the more developed countries will need to adapt to an unavoidable trend of population aging. Some countries have already taken several steps in this area. For example, the United States is gradually increasing the retirement age; other countries have explicitly linked their retirement age to life expectancy. Several European countries are currently designing major pension reforms. The Netherlands and some countries in the Nordic region have pioneered part-time working arrangements and ushered in changes in gender roles, allowing more flexibility for child and elderly care. Other countries have also enacted measures to address specific labor-market needs through targeting highly skilled and/or less-skilled immigrants. The challenge will be to intervene in a comprehensive way through many policy levers in order to respond to these demographic changes, while preserving prosperity and avoiding extreme intergenerational conflicts (May, 2012).

International migration has been an important component of population dynamics in Europe, North America, and Oceania since the seventeenth century. However, the current pattern of aging populations in these regions, combined with surging younger populations in Africa, Central America, the Middle East, and South Asia – regions deeply affected by political conflicts and climate change – has brought unwelcome surges of international migration from less developed countries to the more developed ones. In addition, international migration within the Global South – as richer countries attract migrants from poorer ones – has grown with improvements to transportation and communications across the developing world. International migration, and its changing patterns, are thus a central issue for the more, the less, and the least developed countries. Currently, international migrants (defined as people living for at least 1 year in another country than their country of birth) comprise 3.5% of the global population. In the North (North America, Europe,

Japan, Australia, and New Zealand) almost 12 of every 100 inhabitants are international migrants, compared to only 2 in 100 in the South (the rest of the world) (United Nations, 2019). However, with growing resistance to immigration in the North and climate crises and political conflicts displacing people in the South, we can expect to see the proportion of international migrants in developing countries to increase in the future. Overall, international migration is expected to continue increasing in the future due to persistent inequalities (local, regional, global), economic and political discrimination, and other pressures such as high population densities, climate-related stresses on land, and/or situations of conflict.

Dealing with shifts in the volume, pace, and sources of international migration is a significant concern for governments. Immigration crises – that is, surges of immigration that are unexpected or undesired and so create a political outcry and calls for efforts to limit population movements – have occurred in recent years, for example on the southern and eastern borders of the European Union and on the southern border of the United States. These crises were triggered by political events in not-too-distant countries, e.g., Syria and Libya in the case of Europe, and Central America in the case of the U.S., and contributed to major political shifts in both the EU and the U.S., with Brexit and the “America First” turn of the Republican Party. Consequently, to preserve their own democratic and open societies, the more developed countries will need to develop and implement comprehensive migration policies not driven simply by nationalist or xenophobic passions, balancing economic needs with democratically defined national interests (Goldstone & Diamond, 2021).

The opportunities presented by the demographic dividend, the pressing challenges of population aging, and rapidly increasing international migration flows worldwide will compel population policymakers to reassess their priorities and sharpen their strategies when designing, implementing, and evaluating population policies and interventions. It should also be noted that the overall context of the implementation of population policies and interventions has changed as

well. In addition to the actors of the public sector, who have traditionally been active in the area of population and family planning, a vast number of agents of the private sector have also become active in population, family planning, and other socioeconomic programs. Their work has been supplemented, and often funded, by a growing number of non-governmental organizations (NGOs) and foundations as well as transnational coalitions, as documented in Chap. 15: *Population Institutions and International Population Conferences* of this *Handbook* (Bernstein et al., [this volume](#)). As a result, a much larger number of actors and stakeholders are now involved in the design and implementation of any population policy or intervention.

When addressing future population policies and interventions, a major consideration will be to assess the policy environment, as well as to examine current national and international policy priorities. Even the best-designed policies will not be effective unless they can win broad support and be successfully implemented. Thus, the greatest challenge of all will be to develop a more effective and integrated approach to the design, implementation, and evaluation of population policies and interventions. This overall objective should be pursued through five related efforts, namely: (1) the prioritization of policy interventions; (2) the building of a policy consensus; (3) the selection of priority constituencies; (4) the institutionalization of adequate and secure funding of policies; and (5) a reliance on evidence-based and research-driven policies (see Chap. 36: *Prospects for Population Policies and Interventions* in this *Handbook* [May & Goldstone, [this volume](#)]).

All these developments call for a redefinition of the role and content of population policies and interventions. Population policies can no longer stand alone, but must be integrated with a wide range of development and social policies. In particular, future policies will need to sharpen their implementation mechanisms to increase their effectiveness in their full institutional context, with a focus on institutional settings, funding requirements, and new priority constituencies for policy interventions. This will require the

collection of additional data, as well as renewed efforts in research and modelling policies and their effects.

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## The Way Forward

Population policies and interventions have often been contentious. It is an unfortunate truth there have been too many cases of coercive and abusive imposition of population policies, for instance to reduce fertility in China, India, and Peru or to promote childbearing in Romania. These experiences have given population policies a bad reputation and have increased distrust of government more generally (Scigliano, 2021).

Throughout this *Handbook*, we have stressed that population policies must be founded on respect for human rights and women's empowerment, and that facilitating people's choice and control of their own reproductive lives and health is the only basis for sound policies and interventions. We have noted, with hope, that this has been the general tendency among policymakers, NGOs, and foundations since the 1994 International Conference on Population and Development (ICPD) in Cairo, but there have been, and still are, too many violations of this important principle.

This *Handbook* has examined the history of population policies around the world, and provided the latest research results on their effects (or lack thereof). A key finding is that learning has been an essential, even defining, element of global population policies, as learning what works and what fails in different contexts has repeatedly forced policymakers and national and international leaders to change their approach. Yet consensus on policies to respond to high fertility, population aging, and international migration is still elusive, and the national and international institutions to manage policies in these areas are still in formation.

To a large extent, population policies and interventions, or their absence, will determine the future demographic situation of human societies. They will also impact their broader socioeconomic and political trajectories as well

as the environment. The fulfillment of the Sustainable Development Goals (SDGs) covering the period 2015–2030 (several SDGs pertain specifically to reproductive health issues), will depend on successful interventions to modify demographic patterns and trends. For example, as discussed in Chap. 7: *Population and Food System Sustainability* of this *Handbook* (Mergos, [this volume](#)), the attainment of global food security goals and improvements in nutrition levels in the less and least developed countries will be largely influenced by the success of population policies and interventions, as these food security goals are based on assumptions of declining fertility levels. Overall, population policies and interventions, or the lack thereof, will also determine efforts to eradicate poverty and reduce other socioeconomic and gender inequities.

In their heyday, population policies were aimed at improving mortality conditions and, especially, decreasing high fertility levels. Instruments of choice were vaccination campaigns and family planning programs, which were established around the world. Today, however, population policies need to address a host of new issues, including sub-replacement fertility, mortality sex differentials, population aging, international migrations, climate change, new epidemics, rapid urbanization, security issues, as well as new bioethical and gender challenges. Policies also need to link population policies to other global policies, like the SDGs and alleviation of poverty and inequality (including gender inequality). In short, population policies need to work toward sustainable development across the demographic diversity of the world and address a host of emerging global challenges.

Most demographic variables are amenable to change. Well-designed population policies and interventions can be both efficient and cost-effective (see Chap. 24: *Measuring the Effectiveness, Efficiency, and Impact of Population Policies* of this *Handbook* [Tarsilla, [this volume](#)]). In addition, results can be obtained over a relatively short period of time, say 10 or 15 years, and not just in the long term. As documented in this *Handbook*, Iran reached replacement fertility levels in a very

short time and Bangladesh achieved very low fertility despite prevailing poverty. In addition, effective population policies can and must be designed within the framework of Universal Human Rights, so that population policies are non-coercive, enhance voluntary choice, and promote gender equity. The *modus operandi* of population policies has changed dramatically in the last several decades, but population policies and interventions are more relevant and more needed than ever.

This *International Handbook of Population Policies* has presented the full tableau of these demographic trends, the history of population policies, ideas for policies and their institutionalization that may prove fruitful in the future, and new approaches for demographic interventions. As shown clearly throughout this *Handbook*, international population policy is where demography, politics, culture, and morality all meet.

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## References

- Bernstein, S., Hardee, K., May, J. F., & Haslegrave, M. (this volume). Chapter 15: Population institutions and international population conferences. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Demeny, P. (2011). Population policy and the demographic transition: Performance, prospects, and options. In R. D. Lee & D. S. Reher (Eds.), *Demographic transition and its consequences*. The Population Council. *Population and Development Review*, 37(Supplement), 249–274.
- Goldstone, J. A., & Diamond, L. (2021). Demography and the future of democracy. *Perspectives on Politics*, 18(3), 867–880.
- Goldstone, J. A., & May, J. F. (this volume). Chapter 1: Contemporary population issues. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- May, J. F. (2012). *World population policies. Their origin, evolution, and impact*. Springer.
- May, J. F. (2017). The politics of family planning policies and programs in sub-Saharan Africa. In J. B. Casterline & J. Bongaarts (Eds.), *Fertility transition in sub-Saharan Africa*. The Population Council. *Population and Development Review*, 43(Suppl.), 308–329.
- May, J. F., & Goldstone, J. A. (this volume). Chapter 36: Prospects for population policies and interventions. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Mergos, G. (this volume). Chapter 7: Population and food system sustainability. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Rodrik, D. (2018). An African growth miracle? *Journal of African Economies*, 27(1), 10–27.
- Scigliano, M. (2021). *Welcome to Gilead: Pronatalism and the threat to reproductive rights*. Population Matters; see <https://populationmatters.org/Welcome-to-Gilead-report>. Accessed 14 Jan 2022.
- Tarsilla, M. (this volume). Chapter 24: Measuring the effectiveness, efficiency, and impact of population policies. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- Turbat, V. (this volume). Chapter 19: Policies needed to capture demographic dividends. In J. F. May & J. A. Goldstone (Eds.), *International handbook of population policies*. Springer.
- United Nations. (2019). *International migrants numbered 272 million in 2019, continuing an upward trend in all major world regions* (Population Facts 2019/4). United Nations, Department of Economic and Social Affairs, Population Division.

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