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**EDUCATIONAL INEQUITY IN SOME LATIN-AMERICAN COUNTRIES:
KNOWLEDGE AND SKILLS OF STUDENTS BY SOCIO-ECONOMIC
FAMILY BACKGROUND. 2009.**

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Over recent decades Latin American countries have focused their education policies in the expansion of them. Some authors consider this achievement towards to the detriment of quality. But, what about the knowledge and skills of students?

Equity in students achievement is defined consistently with the concept of equality of opportunity (Causa & Chapuis, 2010, pág. 4). Equal access to education is among the basic human rights and a component of well being. In this paper we aim to evaluate inequalities in learning opportunities for individuals coming from different socio-economic backgrounds, measured by PISA test scores (2009), as a proxy for inequality of opportunity. The analyses are made inside and cross-country differences in 6 countries of Latin America.

Scores differences between students with high and low values of the Economic, Social, and Cultural Status index (ESCS) provide a measure of fairness of education in each country (OECD PISA reports 2001, 2004, 2007; Schutz et al., 2005, Schutz et al., 2007, Woessmann, 2004, d'Addio, 2007, cited by Causa & Chapuis, 2010). In this case, we applied a mean differences by student's family and home background and we reinforce our results through Gini index, a conventional indicator.

Key words: Education, Equity, Latin America

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Introduction

In recent years, most Latin American countries have made major reforms in the education sector. These have included changes in legislation and public policies to achieve the purpose of UNESCO: Education for All.

Today, the net enrollment rate varies between 66% (Panama) to 84% (Argentina, Brazil, Peru and Chile). Despite poverty and unequal income distribution in recent years has extended the schooling of children and adolescents, even the most disadvantaged sectors. While it has not yet achieved full access to basic education, one of the biggest challenges facing the region is to overcome inequality in the quality of educational achievement and learning (White, 2006).

Have equal opportunities in education implies not only equal access but equal especially in the quality of teaching. We propose therefore a new problem, the assessment of the quality of education. PISA tests of the OECD measure knowledge and skills gained from the young to the old theory of completion of basic education (15 years), which can be considered as a proxy for the quality of the education they received in their educational trajectories

This test gives a common and internationally comparable measure of student achievement of 15 years of age, evaluates the training of students, when they reach the final stage of compulsory education in key skills of language, mathematics and science. Stress tests in the assessment of skills and not content. "It is an assessment that seeks to identify the existence of certain skills, abilities and skills that, together, enable people to solve problems and life situations." (Appraisal Institute - Ministry of Education, 2010)

In the words of the designers of the instrument, the participation of developing countries in a framework proof of dialogue and collaboration ensures that the operationalization of educational objectives concerning what counts as knowledge relevant to adult life contemplating and respect the peculiarities of the countries involved.

For the realization of PISA are used representative samples of students per country. The test consists of several sections that reveal information about the school, teachers, students, study habits of students and their socio-economic context, as well as tests that reveal itself preparing students to solve of exercises to assess competencies in subject areas of mathematics, languages and science, with emphasis on some of them in each shot. In 2009, as in 2000, the emphasis was placed on reading comprehension, emphasizing the use of new technologies.

In this paper it is proposed to interpret the results from a perspective that I evaluated the equity of educational systems. For this reason we analyze the factors associated with the results derived from the context, circumstances of students and material conditions.

Resultados en las pruebas

Table I					
Average scores by country and study areas in PISA. Year 2009.					
	País	Promedio Matemáticas	Promedio Ciencias	Promedio Lengua	Promedio General
	Argentina	388	401	397	395
	Brasil	386	405	412	401
	Chile	421	447	449	439
	Colombia	381	402	412	398
	México	419	416	427	420
	Panamá	360	376	369	368
	Perú	365	369	367	367
	Uruguay	427	427	427	427
	Total	394	406	412	404

Compiled from the database of the PISA, OECD 2009.

Latin American countries scored well below that observed for the average of the OECD countries. In Latin America, including large differences in scores between countries. Although it is far from the scores obtained by the developed countries, Chile is the country in the region that had the best score of 439.2 points on average in the three areas evaluated. Uruguay exceeded by 5 points on average to Chile in math tests, but on average gets 13 points less than the neighboring country. Peru and Panama, meanwhile, are the most backward countries in the region in the average scores obtained in the test and coincidentally of the most backward of all participating countries, just over Azerbaijan and Kyrgyzstan.

Can be recognized in Latin America, for the average scores in all three groups areas Country: Chile, Uruguay and Mexico, with up to 20 points of differences in test results between them, constitute the first group. A second group of countries could consist of Brazil, Colombia and Argentina, with about 40 points of difference in relation to Chile, the highest ranked region. And finally could be considered a third group of countries composed Peru and Panama with 70 points difference from about Chile, which in turn was 57 points below the average of OECD countries.

Educational Equity in the results of the tests

One of the conclusions in the final report prepared by OECD argues that "successful school systems, those with levels above average performance, socioeconomic inequities show below average, available to all students regardless of their socioeconomic status, similar opportunities to learn. " (Appraisal Institute - Ministry of Education, 2010)

In Latin America the issue is not minor and there are large differences within countries. One possible approach to the proposed approach is based on the notion of "cultural capital," which feature homes, although this indicator is complex to measure. A usual measure found in the work of similar characteristics Climate retake the notion of Educational and adopted as a criterion the average years of schooling attained by the parents of the students. OECD proposes the ESCS, an index that includes the cultural environment and access to goods and services of individuals evaluated.

The index "of social, economic and cultural development" (ESCS)

This indicator proposed by the OECD for PISA test is a statistical index of social status, economic and cultural status (ESCS), which in addition to taking variables related to the cultural, introduces other variables as the highest profession of parents, the number of books in the family home and the level of domestic resources.

"PISA ESCS has been calculated from the student responses to questionnaires applied context with performance tests and is expressed as a standardized value for the OECD average with mean 0 and standard deviation 1" (Appraisal Institute - Ministry of Education, 2010).

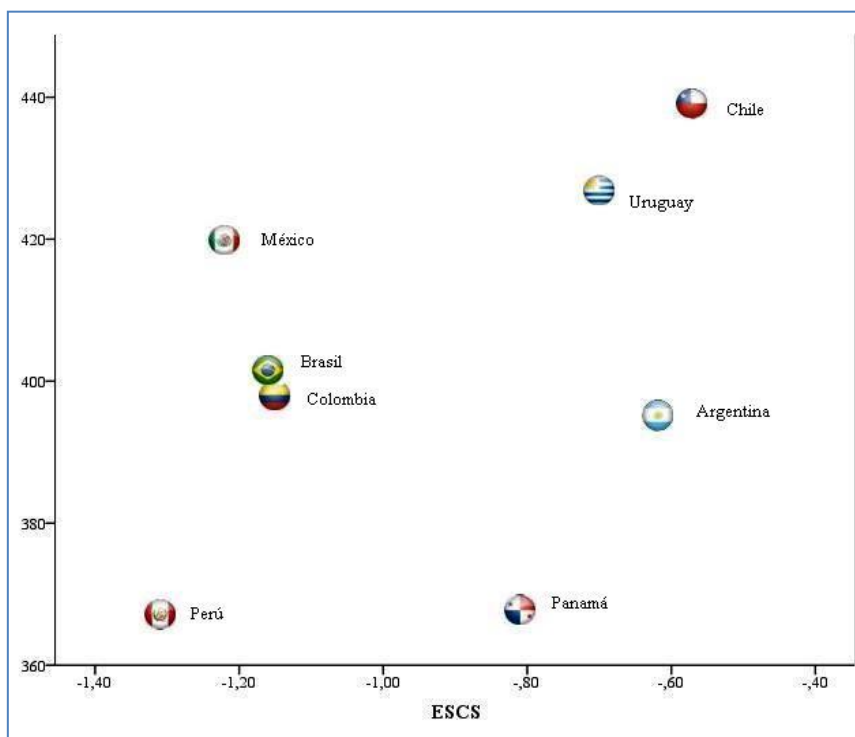
All countries in the region have negative average values of ESCS because the social, economic and cultural is below the average of OECD countries.

The following chart is illustrative of the disparities in the region and can identify three groups of countries we mentioned above, according to the grade obtained in testing students.

Chile as well as being at the top of the Latin American countries in the standings, is the one with the lowest degree of inequality, expressed in the ESCS index.

Figure I

Relación entre los promedios de los países y el ESCS. Año 2009.



Compiled from the database of the PISA, OECD 2009.

Panamá is generally similar results but with ESCS Perú very different. By linking these two variables are also known from notable difference between countries. There is a relationship, if diffuse, among ESCS level and test scores. But as México highlight event, the top three qualified in AL, but also one with the lowest ESCS.

The average education coverage. Net enrollment rates

The analysis of the evaluation of the results achieved in the PISA tests in the countries of Latin America, it is necessary to resort to other sources of data which provide us with information regarding coverage of the education system in each of the countries with internationally comparable indicators. For this reason we turned to information from the statistical office of UNESCO, to give us details of an indicator able to approach the level of coverage achieved.

The net enrollment ratio is an indicator that shows the level of coverage for a given level of education. In this case, the age of students assessed, the net rate is considered for the secondary level. The method of calculation thereof considered mid-level enrollment theoretical whose age corresponds to that level, and the estimated population in these age groups. The rate is expressed as a percentage.

This indicator gives us an interesting perspective, considering the target population education. The younger age structure of the population in developing countries, due to a

late entry, but also more radical, in the process of "demographic transition" of the Latin American population makes them less aged, with a significant portion of its population in the younger age groups. This consideration is substantial because it gives us the pattern of the number of students that each country must take into account the forecasts of many institutions, teachers, and other resources necessary to answer to the demand for education.

Educational coverage data, measured by the net rate by country, presented very different results: Panama shows coverage rates of 66%, while Uruguay, Peru, Colombia and Mexico has a coverage rate of approximately 70%: Meanwhile , Argentina, Brazil and Chile over 80%, the last of these countries the highest coverage in middle level students, reaching a percentage of 84%.

Table II				
Net enrollment rate for middle level by country. Year 2008.				
	País	Mujeres	Hombres	Total
	Argentina	84,8	75,5	80,1
	Brasil	85,4	77,8	81,5
	Chile	86,2	83,4	84,7
	Colombia	74,5	68,1	71,2
	México	73,6	71,2	72,4
	Panamá	68,7	62,6	65,6
	Perú (*)	71,1
	Uruguay	73,1	66,2	69,6
Compiled from the UIS database of UNESCO in 2008.				

The net rate indicator has some limitations for estimating the coverage, in cases where there are a large number of students repeating, that increase the value of the numerator of the rate, can lead to misinterpretation if it is considered in the rate increase net and verifies that the increase is the same product of the high degree of repetition. In any case, governments sometimes, especially when it comes to early childhood, prefer the permanence of children in the education system, even if not consolidate the skills required to pass the different levels.

For the purposes of research, no conclusive results to infer, prima facie, that low scores are the result of the high coverage of mid-level educational level. Chile is the region with highest net rate and high scores. Panama and Uruguay have similar degree of coverage, but there are 60 points of differences between the two countries in the average scores for all areas.

Cultural Property and Pisa test results

It is extremely complex variables clear possession of cultural goods, the possessions of other household goods, trying to approach an indicator of the purchasing power of families and liaise with the results obtained in PISA 2009.

The possession of books in the home is an important asset to which households and can be an indicator of the cultural context of the students. A first approach to the proposed analysis shows that the higher the number of books in the home, the higher students' average score.

The observed differences in mean scores between the first two intervals, ie between 0 and 10 that have books and among those aged between 11 and 25 books show average differences of around 30 points. Even slightly greater the difference between the second and third intervals and then the differences between adjacent intervals decreases.

Table III

Average scores by country according to the number of books of households in the PISA tests.
Year 2009

País	0-10 books	11-25 books	26-100 books	101-200 books	201-500 books	More than 500 books	Total
Argentina	351	388	420	447	476	461	399
Brasil	381	398	427	442	458	415	401
Chile	402	425	454	478	498	481	440
Colombia	365	398	430	440	449	431	400
México	401	417	444	461	476	463	422
Panamá	348	371	403	426	437	395	375
Perú	326	364	406	429	443	386	369
Uruguay	388	417	448	474	500	482	429

Compiled from the database of the PISA, OECD 2009.

Resilient students in the context of each country

The hereditary transmission of cultural and economic possessions has been widely studied, especially the intergenerational transmission of poverty. However, an important point to consider concerns those cases where despite having unfavorable social conditions students obtain higher average scores.

Resilient students are identified as those who achieved good academic achievement despite coming from disadvantaged backgrounds. For the identification of the same sample was divided into tertiles according to the level of ESCS, classifying students as socioeconomic and cultural level low, medium and high. In turn, the sample was divided according to the average score obtained in each country and is again divided into three groups, those who scored average high, low and medium.

Table IV						
Resilient students as ESCS index and average scores in PISA. Year 2009.						
	ESCS	Bajo ESCS			Total Bajo ESCS	% Resilientes
	Promedio Total	Bajo	Medio	Alto		
Argentina		81794	52950	19837	154582	12,8%
Brasil		310290	252114	125055	687458	18,2%
Chile		40832	28602	12572	82007	15,3%
Colombia		89395	56179	27992	173565	16,1%
México		219122	143235	71676	434033	16,5%
Panamá		3837	3789	1763	9389	18,8%
Perú		82513	46703	12415	141632	17,7%
Uruguay		5988	3723	1489	11200	13,3%
Total		833772	587295	272799	1693867	16,1%

Compiled from the database of the PISA, OECD 2009.

By taking the average score of each country international comparison is inappropriate, but the adoption of this criterion to infer within each country the chance to stand out from the students of the disadvantaged within the context of the country in which they reside.

The definition of resilient students adopted in this paper refers to those students who obtained higher average scores (within the 33% higher) and belonging to disadvantaged social sectors (within the 33% lower), of the total population with the index ESCS low.

This definition of resilient students is not equivalent to that of the OECD, which groups classified according to the average scores of all countries.

Relationship between total mean scores and rates of household wealth (WEALTH) and index of educational resources (HEDRES)

Was raised in this case the proposition of a linear regression to establish the relationship between these synthetic indices and scores obtained by the countries of the region.

The wealth index summarizes the possession of: A room of her own, dishwasher, DVD player, cell phones, televisions, computers, cars, rooms with bathroom and three specific elements of each country's wealth.

Meanwhile the index of educational resources containing information related variables does possess: A study desk, own room, a quiet place to study, a computer that you can use for schoolwork, educational software, Internet access, classical literature, books of poetry, artwork, books to help with school work, technical reference books, a dictionary.

As the following table shows that the results are statistically significant. The beta coefficients show that, although there is a unique pattern, in most countries the wealth index brings more to that students have higher scores than the index of educational resources. In Brazil and Mexico, although the relationship is slightly inverted, ie variables provide more educational resources wealth variables, while in Uruguay there are no differences.

Table V

Regression between Total and average scores and HEDRES WEALTH indexes in PISA. Year 2009

País	Coeficientes(a)	Coeficientes no estandarizados				Sig.	Intervalo de confianza para B al 95%	
		B	Error típ.	Beta	t		Límite inferior	Límite superior
Argentina	(Constante)	437	0,178		2456,7	0	437	437
	Wealth	35	0,157	0,3371	220,9	0	34	35
	HEDRES	16	0,147	0,1706	111,8	0	16	17
Brasil	(Constante)	438	0,089		4942,4	0	438	438
	Wealth	19	0,067	0,2117	282,6	0	19	19
	HEDRES	20	0,058	0,2541	339,3	0	20	20
Chile	(Constante)	456	0,174		2613,1	0	456	456
	Wealth	20	0,176	0,2537	112,4	0	19	20
	HEDRES	13	0,166	0,1823	80,8	0	13	14
Colombia	(Constante)	436	0,154		2826,5	0	435	436
	Wealth	21	0,106	0,3197	197,5	0	21	21
	HEDRES	12	0,104	0,1827	112,9	0	12	12
México	(Constante)	456	0,101		4537,2	0	456	457
	Wealth	13	0,062	0,2145	213,8	0	13	13
	HEDRES	15	0,070	0,2113	210,6	0	15	15
Panamá	(Constante)	427	0,746		571,5	0	425	428
	Wealth	27	0,443	0,4164	61,6	0	26	28
	Home educational resources	8	0,524	0,1031	15,3	2,63E-52	7	9
Perú	(Constante)	443	0,266		1662,3	0	442	443
	Wealth	28	0,128	0,3691	217,4	0	28	28
	Home educational resources	16	0,115	0,2320	136,7	0	16	16
Uruguay	(Constante)	433	0,660		656,0	0	432	435
	Wealth	21	0,543	0,2187	38,1	0	20	22
	Home educational resources	21	0,490	0,2515	43,8	0	21	22

Compiled from the database of the PISA, OECD 2009.

Final Thoughts

First we must rescue that although the analysis was raised to the results obtained by Latin American countries in relation to global scores the scores obtained by the countries of the region were always below the country average of OECD.

Multiple can be the causes of poor performance of Latin American students on tests. Since demographic perspectives can be argued that there is a greater demand for education, for the amount of enroll in school age population, followed by a policy that prioritizes access and permanence of the population in the educational system in these developing countries, which developed countries have already solved. In this case it could be argued that the concern of Latin America is postponing quality, putting their efforts in coverage.

You can also hypothesize on some causes of the poor performance of Latin American countries in the tests from other perspectives, and think that teaching schedules that countries focus on the transmission of knowledge, and skills in learning and life skills, or argue that there is lack of training of students in answering this type of testing.

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