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Beyond school effects: the impact of privatization and standardization of school systems on achievement inequality in Latin America

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Summary

In education, often, pundits associate privatization to higher academic performance but greater social inequality on it, whereas standardization of school systems links with equalization of opportunities, at the cost of lower performance. So far, however, we have not had evidence of that relationship, the so-called trade-off between efficiency and equality in educational outcomes. In order to study the extent to which the relationship between privatization and standardization of school systems affects the association between students 'socioeconomic background and academic achievement, I draw on data from 2013 TERCE survey. My findings show that achievement inequality is greater in countries with higher level of privatization of the school system, which, for different levels of standardization in Latin America, drives the level of inequality between higher and lower socioeconomic backgrounds of students. By controlling school characteristics related to quality education provision, I find the same differences. I conclude by discussing how these findings speak to the potential effects that school autonomy policies, which relates to opportunistic local behaviour in selecting and sorting students, have on educational inequalities. Such a phenomenon can also reinforce the strategic behaviour of parents in selecting schools for their children. Hence, I conclude that policies, which aim to remove barriers to access, together with regulations granting equal opportunities of learning, should be developed by the countries in the region.

Policy Recommendations

- Local authorities should reinforce socioeconomic (and specific populations) targeted policies, by providing specialised curriculum, and by ensuring access to effective schools.
- Local authorities should foster performance, which targets policies as complimentary early prevention programmes at the beginning of compulsory education.
- Central government and local authorities should guarantee fair access to good education for the entire student population, by removing economic and selective procedures. They also must guarantee high quality teaching training and funding for all schools.
- Although governments may grant certain level of autonomy to schools, in terms of educational projects, those schools, which accepts public funds, should comply with strict regulations. These regulations should aim at avoiding school screening, while discouraging parents' strategic behaviour in school choice.

Introduction

The study of the effect of educational institutions on observed inequalities is at the core of the analysis of educational policies. Comparative research on education has shown important insights concerning the extent to which cross-national differences impact educational outcomes. Despite the predominant focus on industrialized countries, such a kind of research has showed how institutional dimensions explain differences across countries at the level of inequalities in academic achievement. For instance, literature has shown the greater influence of diverse forms of differentiation of educational systems on socioeconomic achievement gaps. This phenomenon is also called achievement inequality (Woessman 2003, Brunello and Checchi 2007 Mijs and van de Werfhorst 2010).[1] Evidence also shows that there is high standardization associated to a reduction in performance inequalities, either by input (less autonomy in what to teach) or by output - the use of nationally regulated centralized exams (Bol and Van de Werfhorst 2011, Bol et al 2014, Chmielewski and Reardon 2016).

However, scholars and policy-makers have paid less attention to non-tracked educational systems. The gap in the literature is particularly evident in the study of main forms of differentiation, when it links with the relative privatization of school systems. No study looks at the forms of differentiation, which derives from the equilibrium between private providers and parents' choices, in order to explain cross-national differences in achievement inequality, particularly among developing countries. Studies focus on achievement gaps in Latin American countries, but such a literature has focused on the profiling of efficient schools profile (Willms and Somerss 2001), and the effect of private schools (Somerss et al 2004). Although informative, this effort leaves open the question concerning the extent to which educational policies have effects on the distribution of academic achievement in Latin America.

The design of educational institutions may face policy trade-offs in the tasks of school systems, which they served. Deregulation as privatization and school autonomy may enhance efficient sorting of students. It may also maximize learnings at the price of exacerbating social inequalities. A centralized education system may guarantee equality of educational opportunities, but it is not clear if it influences the average performance level (Bol and van de Werfhorst 2011, Pedró et al 2015). This study aims at filling such a gap. First, I begin from the widely supported assumption that the organization of educational systems affects the educational outcomes of students partly.

[1] Usually differentiation among school systems has been operationalized at the level of school tracking. However, there is evidence that socioeconomic achievement gaps are present before the tracking has begun (Chmielewski and Reardon 2016)

Second, I focus on developing countries – Latin American countries, since we know less about the impact of institutions in the educational outcomes in the region. Third, I investigate the trade off between the level of privatization, and standardization of the school systems, and the generation of achievement inequality.

Educational institutions in Latin America

Traditionally, policy makers place compulsory education under state governance, in both industrialized countries and developing countries. They do so to supply education as a public good. However, the mix of regulations, and the degree of autonomy that countries' education policies allow for, vary noticeably, depending on resources as well as social and political processes. In this respect, Latin America offers an interesting institutional context, where we can determine the effects on educational inequalities.

On the one hand, the prevalence of enrolment in public schools epitomises relatively centralised school systems, which have higher levels of standardization in the provision of education. In other words, the quality of education meets the same standard nationwide. Therefore, we could define standardisation as a low degree of school autonomy over curricula and budgetary decision-making (input), and in terms of presence of curriculum-based external exit exams (output) (Allmendinger 1989, Bol and Van de Werfhorst 2011, Chmielewski and Reardon 2016).

In the region, the Cuban school system is a remarkable case, which, since long time, has been having the highest performance in regional assessments. A high level of standardization reflects the strict governmental social controls. In practice, this means programs to support schools, regulated training programs for teachers, tight school management, and monitoring procedures for children progress (Willms and Somerss 2001, Carnoy et al 2007). However, non-aligned standardization policies could hamper the incentives and orientation to high achievement, while lowering the average performance (Woessman 2003, Bol and Van de Werfhorst 2011).

On the other hand, many countries in the region have introduced different forms of privatization policies. Chile is a paradigmatic case. Since early 80s, Chile has implemented a nation-wide voucher system. Recently, Argentina and Colombia have developed low-cost private schools by voucher schemes. In the rest of the countries, in education, private sector remains relatively small, especially when we consider the number of enrolments. There is mixed-evidence of the effect of these policies on performance. Equally, scholars also reports degrees of social segregation across schools (Belfield and Levin 2002, Mizala and Torche 2012, Pedró et al 2015).

The privatization movement shares some common features across different national contexts. Hidden forms of tracking make the privatization reforms an important drive of differentiation of school systems, ranging from elite schools to low-cost, fee paying and/or community-run schools (Belfield and Levin 2002, (OECD 2011, Pedró et al 2015). An increasing autonomy of schools have led to non-desirable practices and local opportunistic behaviour (Woessman 2003). For instance,

we can mention the cream-skimming procedures to select students, and the transfer of students from one school to another because of behavioural and academic reasons. Inside schools, we know that grouping or repetition policies are forms of vertical differentiation (OECD 2011). They might also be the mechanism that explains social inequalities in school systems that have a bigger private sector, since such a sector was thought to be for developed countries (Chmielewski and Reardon 2016).

The measurement of institutional effects on achievement inequalities

I analyse data from the *Tercer Estudio Regional Comparativo y Explicativo* (TERCE)[2], which the UNESCO office in Santiago (Chile) implemented in 2013. TERCE is the most recent large-scale assessment that covers students and schools in Latin American countries. Fifteen countries took part in the survey: Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru and Uruguay[3].

TERCE is a school curriculum-based international study that measures the learning achievements for a representative sample of students in the third and sixth grades of primary school, by means of a standardized survey. It also includes measures of internal procedures and characteristics of schools. I draw on a subset of 43476 students in 2446 schools, according to two restrictions: first, I exclude the Mexican state of Nuevo León in order to focus strictly on national school systems. Second, I delete cases with missing values.

This sample represents the 76% of the effective sample[4]. I use sampling weights (regional) for all the analysis, following the suggestions that data provider made for TERCE data.

In agreement with the comparative research body, I use two-level hierarchical models in order to account for the multilevel structure of the data, students nested in schools with random school effects, and country fixed effects.

[2] Third Regional Comparative and Explanatory Study.

[3] The questionnaires were culturally adapted to each country.

[4] The results released by LLECE, UNESCO are based in the effective sample (i.e. excluding Nuevo León). In agreement with the release of TERCE results, I have also excluded the Mexican state of Nuevo Leon. This choice helped me to focus strictly on national school systems.

By fixing the country level effects, I account for the unobserved heterogeneity in the relationship between the achievements of students and the educational systems, given the non-random, low sample size of countries (15) (Bol et al 2014, Mijs 2016)[5].

This strategy allows me to focus on the cross level interactions between countries' institutional features, and students social background, after controlling the unobserved heterogeneity between countries.

The basic model is the following:

$$y_{ij} = \beta_{0ij} + \beta_m x_{ij} + \beta_1 SES_{ij} + \sum_{k=k-1} \beta_x D_k + \beta_2 S * SES_{ij} + \beta_3 P * SES_{ij} + \beta_4 S * P * SES_{ij} + \beta_n X_j + \beta_p C_j + e_{ij} + u_{0j} \quad (1)$$

The dependent variable is performance in mathematics in the 6th grade. It is the subject that students learn more visibly at school (Coleman 1975, Bol et al 2014), and it seems to be the most sensitive subject to socioeconomic background. TERCE survey uses five plausible values, which represents the probability distribution for a student's ability (OECD 2009).

Therefore, I estimate the models following imputation procedure based in Rubin' rules (1986, 1996). This helps me to account for the variance, both within and between plausible values (OECD 2009). I scale the mathematics score so that TERCE mean score is 700, with standard deviation of 100 (UNESCO 2015a).

The models include a set of control variables at student level (x_{ij}) that literature, as much as TERCE results release, suggests are correlated to positive effect on achievements (parents' learnings supervision, students reading habits) and sociodemographic variables, like gender, immigrant father, indigenous mother and socioeconomic background index (SES_{ij}).

For school level, I control for organizational features of schools and internal processes (X_j), such as class climate, working environment, feedback to teachers 'practices, facilities, type of school (urban private, rural, urban public as reference), measures of social composition of schools (C_j), mean school SES, and mean school of expectation to enter into University.

[5] Country random effects could be estimate with a larger sample of countries. In this study, adding random effects to the country level could violate the assumption of normality in the country-level residuals (Bryan and Jenkins 2013)

All these variables were already constructed in TERCE datasets as standardized indexes, with the exception of school social composition in terms of educational expectations (Willms and Somers 2001, Somers et al 2004, UNESCO 2015b). I estimate country fixed effects β_x by adding country dummies D_k, which accounts for country-specific variation in achievement. The random intercept allows me to control for differences in average performance related to schools' unobserved internal process (u_{0j}), plus the error term (e_{ij}).

The key variables are the country level indicators of educational systems in Latin America. Following Bol and van de Werfhorst (2011), I operationalize the level of privatization as the percentage of enrolment in urban private schools (P). I construct the level of standardization of input by aggregating seven questions to the country level. This helps me to obtain national percentages[6].

The questions describe budgetary decisions-making items (i.e.: teacher hiring and wages), and curricula decision-making (textbooks, course contents, course offering) from principals' questionnaire[7]. On these seven variables, I perform a principal component factor analysis. One factor stands out, which describes the level of standardization of input (eigen value +4.67, explaining 67% variance). The index has mean of zero and standard deviation of one (S).

To the model, I add cross-level interactions between institutional indicators and the student SES, in order to determine possible heterogeneous effects on mathematics achievement (β_2, β_3).

Finally, a three-way interaction tests the possible trade-off relationship between the effect of the two institutional indicators on achievement inequality, our main hypothesis (β_4). Table 1 shows all the descriptive statistics of the variables, which I use in the analysis

[6] As the focus is on the estimation of differences regarding the regional average, rather than the comparison between countries, I use the regional weights to calculate the percentages for each country and run the regression models.
[7] I use the following questions: p24.1 to p24.4, which describe the degree of autonomy in the management of teachers' hiring and wages, and p24.10 to p24.12, which describe degree of autonomy in choosing textbooks, course contents, and course offering.

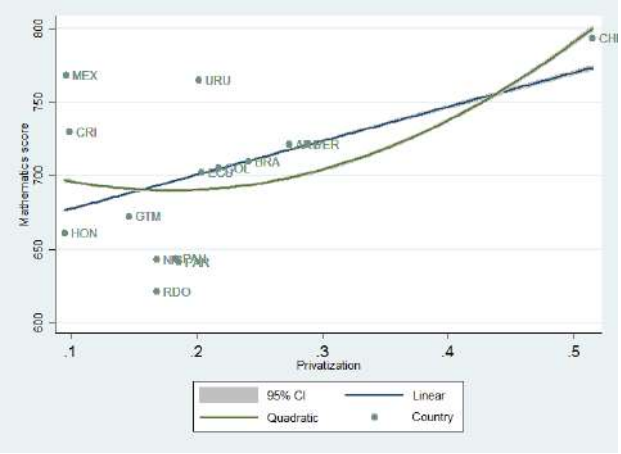
Table 1. Descriptive Statistics for All Used Variables

	Mean	Min	Max	SD
Individual Level Variables				
Plausible value mathematics 1	706.84	338.37	1150	99.669
Plausible value mathematics 2	706.8	341.55	1150	99.694
Plausible value mathematics 3	706.82	368.37	1150	99.314
Plausible value mathematics 4	706.9	336.19	1150	99.487
Plausible value mathematics 5	706.66	375.87	1150	99.444
Parental involvement	.003	-3.020	.859	.993
Reading habits	.011	-2.697	1.559	.994
Female	.505	0	1	.499
Father immigrant	.010	0	1	.102
Mother indigenous	.014	0	1	.117
SES (Socioeconomic status)	.045	-2.620	2.895	.997
School level variables				
Mean school classroom environment	-.112	-4.117	2.063	1.022
Mean school work environment	-.145	-6.908	1.406	.954
Mean school monitoring teachers practices	-.053	-2.125	1.175	.979
Mean school facilities	.346	-2.370	2.859	.991
Urban private school	.217	0	1	.412
Rural School	.339	0	1	.473
Mean school educational expectations	.541	0	1	.262
Mean school SES	.304	-2.411	3.265	.947
Country level variables				
Standardization index	-.026	-1.919	1.260	1.004
Privatization (%)	.210	.096	.515	.108

How Latin American countries differ from one another in the level of privatization and standardization of their school systems

Figure 1a and 1b show how educational systems of the region vary according to the level of privatization. They also show that the standardization of inputs links with the average mathematics achievement for the region's countries. There is evident variation between country average achievement and the extent to which they present different levels of privatization and standardization of their school systems. Figure 1a shows a positive relationship between the privatization level and mathematics scores, which explains 25% of the variance of mathematics achievement across countries (linear prediction)[8]

Figure 1a. The relationship between the level of privatization and mathematics scores across Latin American school systems



However, the level of standardization of school systems suggests a nonlinear relationship, which countries with lower standardization and higher privatization fare over the average achievement as high as countries with higher level of standardization, but lower level of privatization. This relationship explains 49% of the mathematics variance across countries, whereas the linear prediction indicates no relationship. These patterns suggest a possible inverse relationship between the two institutional indicators

[8] The quadratic prediction increases the variance explained of achievement to 35%.

Figure 1b. The relationship between the level of standardization and mathematics scores across Latin American school systems

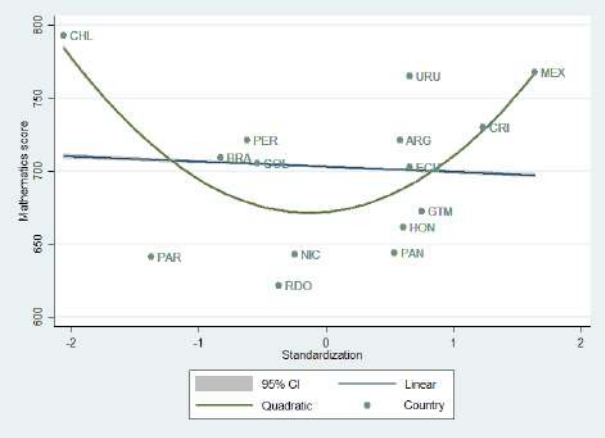
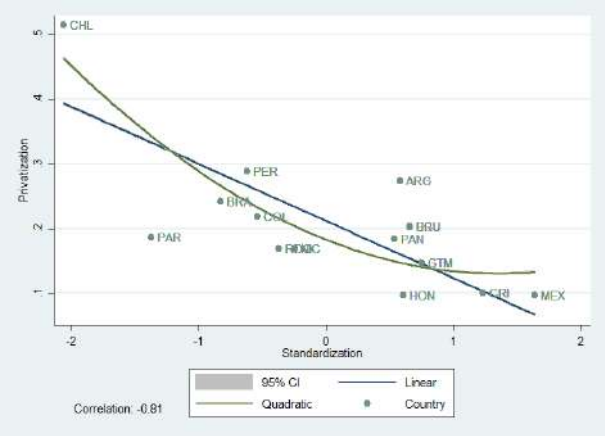


Figure 2 shows the scores and percentages of both institutional indicators for the 15 countries considered. We observe that there is a considerable variation in both the level of standardization and privatization of school systems. However, there is a sizeable correlation among the two institutional dimensions (-.081). Substantially, the figure tells us that, in less privatized educational systems, there is a higher level of standardization. This is not surprising: a higher level of privatization gives more autonomy to schools. The regulations about supplies, course contents, and course offerings may be weaker or less strict. This is the case for countries with school systems that have a proportion of private enrolment close to the regional average (around 21%); like Colombia, Paraguay, Brazil, Peru – with a high proportion of private enrolment, and the most privatized school system, Chile, which is the top performer of the region.

I notice that, higher levels of privatization couple with lower levels of standardization, on average. Moreover, for similar levels of standardization, but different levels of privatization, there are top performers, like Uruguay, average performers, like Ecuador, and countries that have a lower performance, like Panama, Guatemala and Honduras. Compared to Chile, México is the opposite case. It is a top performer with the highest level of standardization and a low level of privatization.

Figure 2. The relationship between the level of privatization and the standardization across Latin American school systems



The effect of the level of standardization and privatization on achievement inequality in Latin America

Before discussing the relationship between the country level variables and achievement inequality, I summarize the main results of the models. The results for the region showed that school level differences account for nearly 50% of the variance in student's mathematics achievement in the 6th grade (Model 0). However, the country fixed effects explain almost half of the mathematics variance at school level, which reads as the specific configuration that school systems have across countries (Model 1). We relate such a specific organization to the institutional features of our interest: the proportion of enrolment in urban private schools, and the level of standardization of input. Before testing our main hypothesis, it should pointed out that being female student and having an indigenous mother show a negative and significant effects on mathematics achievement, alongside with having immigrant father (Model 2), but the latter becomes non-significant and less negative, once we control the socioeconomic status (SES). Consistent with the literature, SES has a strong effect on achievement, and it increases the explained variance at school level up to 68%. This directs our attention to compositional effects, due to the uneven distribution of students across the schools in the region (Willms and Somers 2001, Somers et al 2004). Good reading habits at home have a positive and significant effect on mathematics learnings, which facilitates learnings processes in other subjects (UNESCO 2015b). Parents' learning supervision index has a positive, but smaller and less significant effect, when we

control it with the SES index (Willms and Somers 2001). This may reflect the differences in students' learning between lower and higher SES parents (Models 3 to 5).

For the existence of a trade-off between efficiency-equity in Latin America, Model 5 shows that the cross-level interactions between the level of standardization and student SES do not ameliorate the performance differences between students from different social background. In fact, the effect is positive, although small (in absence of private enrolment), and it becomes non-significant after adding school level controls. The cross-level interaction between student SES and the level of privatization has a greater effect on achievement inequality, as expected. It increases performance differences in almost half of score standard deviation. Roughly, academic advantage of high SES students over lower SES students is greater in school systems with a big private sector and an average level of standardization. The three-ways interaction shows a positive effect on achievement inequality, but it shows less significant than the effect of the level of private enrolment. Therefore, we read the predicted effect as an attenuating effect of higher standardization of input on achievement inequalities in school systems with higher private enrolment, despite the fact that inequalities persist. The institutional dimension of school systems in the region, then, explains roughly 30% of performance differences between high and low SES students.

By adding school level variables, which is my focus, the three-ways interaction remains significant, no matter the slightly change in the magnitude of the effects (Table 3). Among the school level indicators of organizational features and internal processes, the good classroom environment and the higher level of resources and facilities in schools link with high mathematics performance. They also explain part of achievement inequality at the individual level. These effects reflect the higher effectiveness on learnings of schools with well-trained teachers and better facilities, which high SES parents choose (Model 6). The model explains 74% of the between school variance, and the intra class correlation decreased to 21%. However, model 7 suggests that schools with higher resources are mostly private, which seem to have a greater effect on academic performance. In turn, social composition explains the results in the 60% of private schools (Model 8).

Table 2. Multilevel Linear Regression Models with a Random School Intercept and Fixed Country Effects. Dependent variable: performance on TERCE mathematics test 6th grade

	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5
Individual level						
Country Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
Parental involvement			1.606**	1.231*	1.235*	1.227*
			(.627)	(.631)	(.630)	(.631)
Reading habits			4.257***	4.281***	4.321***	4.299***
			(.715)	(.714)	(.711)	(.713)
Female			-11.801***	-12.241***	-12.306***	-12.322***
			(1.395)	(1.394)	(1.397)	(1.400)
Father immigrant			-11.779**	-8.779	-8.210	-8.371
			(5.475)	(5.466)	(5.440)	(5.455)
Mother indigenous			-24.380***	-21.197***	-21.872***	-21.775***
			(5.832)	(5.542)	(5.551)	(5.544)
SES				22.848***	18.059***	14.059***
				(.774)	(3.187)	(4.010)
Interactions						
SES*Standardization					4.779***	2.718*
					(1.465)	(1.631)
SES*Privatization					22.178	47.976**
					(15.174)	(21.384)
SES*Standardization*Privatization						15.365*
						(7.878)
School-level						
Mean School Classroom environment						
Mean School Work environment						
Mean School Monitoring teachers practices						
Mean School Facilities						
Urban private school (ref. Urban Public School)						
Rural School						
Mean School Educational expectations						
Mean school SES						
Constant	695.058***	777.556***	783.756***	775.241***	525.616***	523.849***
	(2.253)	(6.696)	(6.682)	(5.824)	(12.764)	(12.548)
Random Effects						
∑u0	5055.468**	2536.549**	2481.285**	1612.705**	1614.018**	1603.178**
	(216.990)	(138.484)	(141.650)	(114.909)	(114.972)	(115.181)
∑eij	5111.418**	5117.329**	5069.251**	4990.31**	4985.581**	4985.952**
	(107.097)	(106.902)	(103.997)	(103.611)	(102.892)	(102.742)
ICC (school)	0.50	0.33	0.33	0.24	0.24	0.24
Observations	43476	43476	43476	43476	43476	43476
Number of schools	2446	2446	2446	2446	2446	2446

Source: Own calculations with the data from TERCE assessments for 15 countries. Note: Standard error in brackets. All standard errors calculated by taking into account both the variance between and within plausible values ***p<0.01. **p<0.05. *p<0.1 two-tailed tests

Table 3. Multilevel Linear Regression Models with a Random School Intercept and Fixed Country Effects. Dependent variable: performance on TERCE mathematics test 6th grade

	Model 6	Model 7	Model 8
Individual level			
Country Fixed Effects	Yes	Yes	Yes
Parental involvement	1.036	.946	.716
	(.629)	(.629)	(.633)
Reading habits	4.482***	4.545***	4.567***
	(.708)	(.707)	(.709)
Female	-12.401***	-12.381***	-12.478***
	(1.404)	(1.405)	(1.404)
Father immigrant	-9.572*	-9.678*	-9.279*
	(5.392)	(5.381)	(5.348)
Mother indigenous	-19.303***	-19.067***	-17.033***
	(5.454)	(5.455)	(5.459)
SES	10.364***	9.889***	7.307*
	(3.939)	(3.940)	(3.940)
Interactions			
SES*Standardization	2.272	2.507	1.913
	(1.611)	(1.610)	(1.626)
SES*Privatization	52.543**	49.795**	52.193**
	(20.842)	(20.748)	(20.922)
SES*Standardization*Privatization	16.599**	16.533**	16.881**
	(7.709)	(7.678)	(7.683)
School-level			
Mean School Classroom environment	6.208***	5.821***	5.548***
	(1.473)	(1.428)	(1.348)
Mean School Work environment	.527	.323	.497
	(1.535)	(1.516)	(1.448)
Mean School Monitoring teachers practices	.565	-.090	-.282
	(1.389)	(1.360)	(1.327)
Mean School Facilities	22.481***	16.820***	9.783***
	(1.773)	(1.898)	(1.967)
Urban Private School		26.302***	10.268***
(ref. Urban Public School)		(3.324)	(3.727)
Rural School		.547	9.099***
		(3.153)	(3.199)
Mean School Educational Expectations			32.151***
			(9.652)
Mean school SES			14.075***
			(3.161)
Constant	508.620***	507.596***	466.494***
	(11.497)	(11.668)	(15.008)
Random Effects			
∑u0	1302.165**	1229.376**	1082.256
	(95.457)	(92.356)	(88.615)
∑eij	4980.625**	4980.369**	4986.904

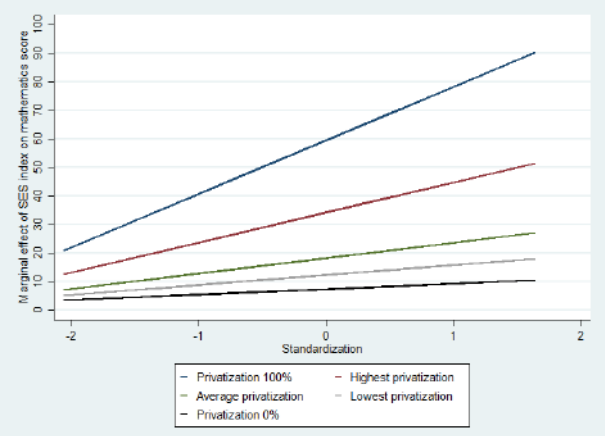
	(102.864)	(102.976)	(103.722)
ICC (school)	0.21	0.20	0.18
Observations	43476	43476	43476
Number of schools	2446	2446	2446

Source: Own calculations with the data from TERCE assessments for 15 countries. Note: Standard error in brackets. All standard errors calculated by taking into account both the variance between and within plausible values. ***p<0.01. **p<0.05. *p<0.1 two-tailed tests

Even if cross-level interaction between SES and standardization disappears when school level controls are added, a large private sector increases achievement inequality. The three-way interaction effect, the main concern of this study, persists. It also remains relatively stable and significant. This finding points to persisting inequalities between students from different social backgrounds. Hence, the results suggest that there is no room for supporting the hypothesis of trade–off between efficiency and equality. The level of standardization does not diminish inequalities, but its effect is smaller.

Figure 2 depicts the calculation of the effect of SES index on mathematics achievement for the varying scores of the level of standardization of school systems and different levels of privatization. I plotted five lines: two hypothetical cases as reface, the blue line depicts a whole stratified school systems, in which each autonomous school has different types of students (100% of private enrolment), and the black line stands for an hypothetical school systems without private enrolment. The figure shows different levels of inequality for three different levels of privatization: the lowest level (around 9% of private enrolment, grey line), the average level (21% of private enrolment, green line) and the highest level (51% of private enrolment). I use estimated coefficients of the three-way interaction in model 8 in order to calculate the effects of the two institutional dimensions on achievement inequality. We can see that private sector amplifies inequalities. This is true for different levels of standardization.

Figure 3. Marginal effects of SES index on mathematics scores for levels of standardization and privatization of educational systems in Latin America.



Discussion

A considerable body of literature has shown that, in the educational system, specific institutional arrangements help the understanding of cross-national differences in educational outcomes. This is particularly true when we think of availability of resources and other characteristics of schools (Woessman 2003, Brunello and Checchi 2007, Bol and van de Werfhorst 2011, Bol et al 2014, Mijs 2016). Researchers have overlooked how educational institutions affect academic performance at different stages of career and different national contexts, like developing countries. My work show that country-specific configurations of school systems links with difference in mathematics achievement.

Different country-levels explain differences among schools partly. I have chosen two important dimensions of school systems for the Latin American region: the level of standardization and privatization. My results confirm some recent findings. Specifically, achievement inequality is more evident in school systems with a great level of differentiation between schools. The size of the private also proves to be an important indicator (Chmielewski and Reardon 2016).

For standardization, results show that it associates with a low degree of achievement inequality. I did not find support for claims that relate a high level of standardization with low average performance (Woessman 2003, Bol and van de Werfhorst 2011). However, the main finding points to persistent inequalities when private sector in school systems is big. The models predict that these inequalities are not lowering as the standardization level increases. In this respect, I do not find support for a diminishing effect of policies, which address equalization of opportunities. Such policies seem to maintain certain level of inequalities, which turn to be higher as the enrolment in private schools increases.

Such effects are still significant after adding school level controls related to internal processes. The size and direction of these indicators suggest an uneven distribution of professional skills and resources between schools. Effective schools have better resources and a positive learning climate in classrooms, which explain part of the inequalities at individual level. However, the results suggest that these effects links with the uneven distribution of high SES students into urban private schools. In this regard, the effects of institutional context on achievement inequality may be related to unobserved mechanisms, which connects with incentives linked to kinds of strategic local behaviours, both of schools and families, which search for the right school and social environment for their children (Ball 2003, Kosunen 2013).

Theses issue should be matter for future research, alongside the effect of standardization of

output, which has an equalizing effect (Bol and van de Werfhorst 2011, Bol et al 2014, Chmielewski and Reardon 2016)

These findings are relevant for educational policy. They show, in Latin America, the estimate effects of several relevant actionable policy indicators at individual, school and national level. Inside schools, local authorities should reinforce socioeconomic support for vulnerable populations. They should also sustain tailored curriculum. Moreover, institutions should bolster performance-targeted policies. This means to encourage complimentary early prevention programmes at the beginning of compulsory education. This also means to develop programmes that focus in the involvement of parents in the process of learning.

At the school level, local authorities must guarantee fair access to the entire student population by removing economic and selective procedures. Furthermore, they must guarantee high quality teaching training and adequate funding for all schools. At the national level, central government may supervise and regulate the training of teacher. It also may ensure enough room for schools to develop distinctive educational projects. However, it is imperative to require schools, which accept public funds, to comply with strict regulations. It is important to avoid school screening. Strategies to disincentive strategic behaviour of parents in the choice of school may be beneficial.

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