When schools are the ones that choose: the effect of screening in Chile*

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Abstract

The voucher scheme introduced in Chile in 1981 allows for-profit private subsidized schools to choose their students. This study examines the effects of this practice on the results' gap between private and public schools and its impact on academic performance. Information from the 2005 SIMCE test is used, in which parents were asked about the admission requirements in their children's schools. We present evidence indicating that student selection is a widespread practice among private subsidized schools. After controlling for a series of selection criteria and the segmentation effects that they produce, the evidence indicates that there are no differences in results between public and private subsidized education. Our results show that a student attending a school that uses selection criteria obtains 6-14% higher results in standardized mathematics tests than a student from a school that does not use selection.

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1 Introduction

The international evidence convincingly demonstrates that education is a key factor for raising incomes, social mobility and welfare.[1] From a theoretical point of view, there are at least two alternatives for obtaining better results. The first is to increase the resources spent on education. However, the empirical evidence indicates that increasing the resources of the system does not necessarily lead to improved results.[2]

A second policy option is to introduce competition and incentive mechanisms through demand-side subsidies and vouchers. This system uses direct subsidies allowing parents to choose. It is designed to encourage competition among educational establishments in the provision of better educational services to capture parents' preferences for their children's schooling.

This kind of system was implemented in Chile in the early 1980s. Public and private subsidized schools receive a common direct subsidy from the government for each student admitted. If the student decides to change to another school, the new school receives the entire subsidy.

The Chilean experience is the most significant international example of a competition and incentive-based educational system. It is one of the few nationwide systems in the world and is backed by over 20 years of data. Therefore, studying the Chilean case is crucial to evaluate the results of competition in a sector traditionally organized around classic public good mechanisms.[3]

The above design assumes the existence of an education market that operates as indicated. There are at least two characteristics of the Chilean system that call into question the functionality of this market. First, the evidence suggests that parents do not necessarily choose schools on the basis of quality, which is a key element for strengthening (weakening) good (bad) schools. In fact, Elacqua, Schneider, and Buckley. (2006) show that the main reasons behind school choice by families is the proximity to the home or workplace. In addition, parents do not have the necessary information to compare the quality of schools.

A second questionable characteristic is that public schools are obligated to accept all students, while private subsidized schools can select students in accordance with their educational objectives. Furthermore, private subsidized schools are allowed to operate for profit. As such, in order to minimize costs, private subsidized schools will have incentives to select students that are less expensive to educate. In other words, better-skilled students and those from higher socio-economic groups. Indeed, if the objective of schools is to improve their absolute performance in standardized tests, they could foreseeably be expected to choose better-skilled students with higher social capital, since this would allow costs to be reduced and competitiveness to be increased (Epple and Romano (1998)). It is also argued that these practices would not occur in a competitive environment, since private subsidized schools would have incentives to admit all students, since that would be the way to maximize the gains. However, the limited evidence found in Chile suggests that choosing students could be a significant phenomena.[4]

[1] See Arrow, Bowles, and Durlauf (2000) for a range of interdisciplinary articles that highlight the importance of education in the reduction of income inequality and fostering social mobility.

[2] Hanushek (1986), Hanushek (1996), and Hanushek, Rivkin, and Taylor (1996) have demonstrated this using sample information for various countries.

[3] For an analysis and discussion of the Chilean educational model, see McEwan (2001) McEwan (2003), Hsieh and Urquiola (2006) and Gauri (1999).

[4] Parry (1996) provides evidence on the selection practices used in Chilean schools concerning admission exams, minimum grades, behavior reports, and parental interviews. The study includes a similar exercise to the one proposed here, but its results and interpretation are limited since the data is based on a small sample chosen by the author and the information on the various selection practices come from interviews with school

We provide evidence on the use of student selection mechanisms applied by private subsidized schools in a competitive context. It also looks at the effect of selection on academic results in standardized tests. The screening criteria are grouped into four categories: student ability, family income, parental interviews, and religious selection.[5] The total impact of the screening is captured by the direct selection effect, while the indirect effect is measured through the benefit of attending a school where the socio-economic profile of students is higher than that of schools without selection.

In this study uses individual information from the 2005 SIMCE for 4th grade primary students. The evidence indicates that the different selection methods are widely used by private subsidized schools, and especially in schools with high socio-economic profiles. As the theory suggests, student ability selection is the most frequently used, and produces significant effects on subsequent academic results. The results show that the public-private gap observed in earlier studies disappears after controlling for the selection criteria used.

This study is structured into seven sections. This introductory section is followed by a brief introduction to the Chilean educational system. Section 3 reviews the main literature on the impact of the voucher system on academic results in Chile. Sections 4 and 5 contain a description of the data, and an explanation of the methodology used in the study respectively. Section 6 presents the findings, and the conclusions are presented at the end of the study.

principals, which could bias the extent of the results. In fact, it is better to use information provided by parents.

[5]These selection categories come from questions to parents in the 2005 SIMCE. Section 4 explains how these variables were constructed in detail.

2 The Educational System in Chile

The Chilean educational system underwent significant modifications in the 1980s as a result of a far-reaching program of reforms implemented by the military government (1973-1990). The reforms included decentralizing the administration of educational establishments by transferring the administration of public schools from the Ministry of Education to the Municipal Authorities.[6] It also included a nationwide voucher system, which included publicly and privately administered schools. [7] The reform introduced a uniform demand-side subsidy in which parents are free to choose among the schools in the market.

As a result, education in Chile shifted to three kinds of administrative alternatives: Municipal Establishments (PU) funded by the student subsidy provided by the State and under municipal administration. Private subsidized establishments (PS) funded by the student subsidy and administered by the private sector, and private fee-paying establishments (PP) funded and administered by the private sector. [8]

The reform led to a sharp redistribution of the composition of the educational system, giving a strong push to the private subsidized sector. In fact, while in 1981 approximately 15% of school admissions corresponded to that type of establishment, by 2005 that figure had risen to 47%.[9]

While private subsidized and municipal schools have the same funding program, there are some differences. Firstly, private subsidized schools can charge payments since 1993, which is known as the shared funding system.[10] According to Ministry of Education data, in 2002 90% of private subsidized schools received a co-payment from parents, which constitutes an access barrier for many families to these schools.

Unlike other voucher schemes implemented in other countries, private schools in Chile can choose their students.[11] On the other hand, municipal schools are prohibited from choosing, except in cases where the demand for places exceeds the availability. Lastly, private subsidized schools can belong to for-profit or not-for-profit organizations.[12]

[6] This is why this kind of establishment became known as municipal schools. The reform also implied termination of the contracts between the Ministry of Education and the teachers, forcing the teachers to choose between becoming municipal employees, or quitting and joining the private sector.

[7] As indicated by Gauri (1999), the political circumstances under which the voucher system was established are determinant in its implementation. Establishing such a system under a democratic government could have required long and profound discussions, and empirical evidence of its expected benefits.

[8] Prior to the reform, there were already private subsidized schools, mainly belonging to non-profit religious institutions, with subsidies that were 50% of those given to public schools. For a more detailed description of the Chilean educational system, see the works of Gauri (1999) and Tessada (1998).

[9] See Bravo, Contreras, and Sanhueza (1999). According to the Statistical Compendium of the Ministry of Education, in Santiago in 2005, these establishments represented 60% of admissions, while in the regions the corresponding figure was 40%.

[10] A description of education funding in Chile and the regulatory changes that allow for shared funding (co-payments) can be found in González (2005).

[11] For example, in the Netherlands and Belgium the private sector plays a significant role in education. However, those schools do not select students.

[12] While in 1981 most private subsidized schools belonged to religious institutions, after the reform most of the new schools were for-profit. For example, in 1988 84% of new schools belonged to for-profit institutions (Hsieh and Urquiola (2006)).

3 Evidence on the Impact of the Voucher System in Chile

Numerous studies have analyzed the impact of the voucher program in Chile. Many of these examine the public-private gap in academic results, and the effects of competition on it.

Using the educational production function approach, McEwan and Carnoy (1998) studied the effect of competition on the Chilean educational system. They used the results of the SIMCE tests from 1988 to 1996. The competition measure was defined as the percentage of private subsidized school admissions in each municipality. The results of the model with fixed effects per school show a negative effect of competition: municipalities with higher admissions levels in private schools have public schools with lower SIMCE results. The authors argue that the negative relationship between competition and results in public schools is produced by the migration of the best students to private schools (sorting).

Meanwhile, Mizala and Romaguera (2000) estimate educational production functions using the 1996 SIMCE test data (4th grade primary school). The SIMCE results of each establishment are regressed against a vector of socio-economic variables (income brackets, vulnerability index), school variables (teacher experience, teacher/student ratio, number of schools, geographical area) and student characteristics (pre-school attendance). The main finding of the article suggests that once the variables described are controlled for, there are small and statistically significant differences in the SIMCE results between public and private subsidized schools.

Gallego (2002) seeks to estimate the effects of competition in the context of the incentives provided by the policy framework and market structure. The article has a theoretical market framework based on the literature on incentives, competition and information. The empirical work is based on the SIMCE test results for the 1994-1997 period. The estimate relates the competition variable, measured as the percentage of private school admissions in the municipality, with the establishment-level SIMCE results. The fraction of the urban population and the number of students in the municipality are used as instruments to treat the endogenous condition of the competition variable. These variables are related to the decision of offering education in a municipality, but they are not correlated to educational results. Considering the universe of private subsidized schools, the results show that competition contributes to a better establishment-level SIMCE average. The effect of competition increases when only one sample of private subsidized schools is used, suggesting that the incentives structure matters since private schools are more subject to competition.

McEwan (2001, 2003) examines the change in the public-private gap when the socio-economic level of families and peer effects are included. Additionally, the article models parental school choice (municipal versus private subsidized). The instrument used is the geographical availability of different types of establishments. It assumes that that variable is correlated to school choice, but not to student ability. Lastly, it places special emphasis on the results gaps associated to catholic schools.

After controlling for selection bias and peer effects, the evidence from the literature for Chile indicates that the gap between public and private subsidized schools is positive and small. However, none of the earlier studies controlled for the selection criteria used by schools.

In general, international academic studies conclude that the socio-economic characteristics of students are the main determinant of academic achievement. In other words, the wealth of student households leads to better academic results. Given this, in the Chilean case as may be expected, schools use selection practices to get the best students in order to improve their own results.

Epple and Romano (1998) show that schools will choose the highest ability students from the highest income families by simulating parental behavior in a free choice system. This is because less capable students imply higher educational costs. In other words, less capable students require greater resources than higher ability students to achieve the same results. Teachers must also spend more time with students with learning difficulties, thus negatively affecting the other students. Therefore, if the objective of private subsidized schools is to maximize gains, then student selection is an easy and economical method for attaining those goals and improving academic results.

Even though the design of the Chilean educational system offers the option of choice as a benefit in itself, the evidence suggests that competition tends to favor middle and high income families. Hsieh and Urquiola (2006) declare that a clear consequence of competition in Chile was to produce a large-scale segmentation of the educational system. According to the authors, private subsidized schools did not respond to the competitive pressures of the market model by raising their productivity, but rather by choosing the best students. This may also explain why better results are not observed in public schools.

Adding to the evidence of segregation in Hsieh and Urquiola (2006), the present article contributes with evidence on the types and uses of school selection methods, and their impact on results. In other words, this article complements Hsieh and Urquiola (2006) by making an in-depth analysis of the mechanisms through which segregation occurs and their effects on academic results.

4 The data

This article uses the database of the standardized SIMCE tests applied to 4th grade primary students in 2005. The test is divided into mathematics, language, and science modules. The SIMCE test is applied to all the educational establishments of the country. The academic results are complemented by information on the establishments and the socio-economic characteristics of the families. The latter information is gathered through a questionnaire for parents that includes questions on the student selection criteria used. The sample used includes 161,619 students from municipal and private subsidized establishments from around the country.[13]

The 2005 SIMCE parental questionnaire included questions on the requirements or background information that were requested when admitting the student. Table 10 presents a detail by type of school with the various requirements solicited from parents. Selection by abilities indicates the cases in which students had to attend a game session or if they had to do a written exam or admissions exam. Income selection indicates that parents had to present a certificate of income to the school. We also include a selection by parental interview, and another for religious reasons when parents indicated that the school had requested

[13]This study, like most of the earlier literature for Chile, only included private subsidized and municipal schools mainly because private fee-paying schools (8% of the total), which do not receive public funding, constitute a completely different market.

a baptismal or church marriage certificate. Since it is self-reported, the responses within schools show differences. This occurs because most students were admitted four years ago and parents may not precisely remember the details. This is why we consider that a school used a given type of selection if more than 50% of the responses were affirmative for each selection category.[14]

Table 6 contains a description of all the variables included in the various estimates. Table 7 presents the descriptive statistics of the variables included in the study. Private subsidized schools have higher parental income and years of schooling compared to municipal establishments. The average family income in those schools is Ch$323,538 (USD $610), which is nearly twice that of municipal schools (Ch$174,859, USD$330).

Mothers of students in private sector establishments have an average schooling of 11.9 years, while the average years of schooling of fathers is 11.8 years.[15] These figures are above the level for municipal schools. Meanwhile, the average size of households tends to remain stable throughout the different administrative alternatives, with an average of 5 household members.

In the mathematics and language scores of the SIMCE tests, the results of private subsidized schools exceed the results of municipal schools.

In addition, 50% of the sample are women, 51% attend private subsidized schools, and 10% of students attend rural schools. The average number of students per class in private subsidized schools is 35, while the corresponding figure for municipal schools is 31 students.

5 Methodology

The methodology used to examine the impact of selection on academic performance follows the production function approach. The dependent variable corresponds to the 2005 mathematics and language SIMCE scores. Two groups of variables are included that explain academic performance. First, student and household characteristics, including student gender, parental schooling, household income and size. The second group of variables includes establishment and teacher characteristics such as: geographical area, number of students per class, 4th grade primary school admissions size, age, experience, gender and postgraduate qualifications of the teacher.

The main variables of interest for this study are the administrative management of the school and the student selection criteria used. We define a dichotomic variable that takes the value of 1 if the student attended a private subsidized school and 0 if otherwise. Meanwhile, the selection indicators used correspond to: ability, household income, parental interview, and selection for religious reasons. A dummy variable is defined for each of these selection criteria, which takes the value of 1 if the school applies selection criteria and 0 if otherwise. Finally, a group of variables was included to capture the peer characteristics of students. These used mothers' schooling, fathers' schooling and average household income in the

[14] The differences in parental responses may be explained by the time elapsed between admission and taking the SIMCE test. Indeed, over four years elapsed since the students were admitted. While the 50% mark may seem arbitrary, the results do not vary significantly when the rule indicating when a school uses student selection is modified. Tables 15 and 16 show the results, for mathematics and language respectively, using the 50% criteria as a selection rule, as well as 75%, the average of parents' responses, and their individual self-reported responses.

[15] In Chile, secondary schooling lasts 12 years.

school.

The dependent variable corresponds to the SIMCE mathematics score of the individual (i), with peers (j) in the school (k). The impact of selection on academic performance will be estimated through the following general model, summarized in the following specification:

$$SIMCE_{i,j,k} = \alpha + \beta_1 PS_i + \beta_2 S_k + \beta_3 P_j + \beta_4 X_i + \beta_5 E_k + e_i \quad (1)$$

PS_i = Dummy that indicates that the student attends a private subsidized school

S_k = Vector of selection dummies of school k

P_j = Vector of peer effect characteristics

X_i = Vector of student and household characteristics

E_k = Vector of school characteristics

Estimator $\beta_1$establishes the results difference in the SIMCE test between students that attend private subsidized schools versus those that attend municipal schools. Estimator β_2 measures the difference in scores between a student that underwent a selection process and one who did not. Estimator β_3 establishes the impact of peer effects on academic results, associated to the direct effect of selection. β_4 represents the controls for socio-economic characteristics. Finally, parameter β_5 captures the effects on results related to school characteristics.

As shown in the literature, the variable that defines the type of administration is endogenous. Indeed, the decision to send a child to a private subsidized or municipal school is correlated to the geographical availability of various kinds of schools with parents' resources and preferences. In that case, the OLS estimates would be biased.

The choice of type of school by parents is modeled through a Probit model. Let us assume that the decision to send a child to a private school depends on the student gender, parental schooling, household income and size. As in earlier articles, the instrument used corresponds to the density of school supply in the municipality. This variable is correlated to the decision by parents to send their child to a private school, but it is not correlated to academic performance. [16]

Then, the model to be estimated in a first stage is:

$$PS_i = \delta_1 + \delta_2 VI_i + \delta_3 X_i + u_i \quad (2)$$

IV_i = Density of school supply in the municipality of the student

X_i = Vector of student and household characteristics

Finally, the model to estimate in the second stage is:

$$SIMCE_{i,j,k} = \alpha + \beta_1 \hat{PS}_i + \beta_2 S_k + \beta_3 P_j + \beta_4 X_i + \beta_5 E_k + e_i \quad (3)$$

[16] This type of instrument is used and discussed in McEwan (2001), McEwan (2003) and Contreras (2002).

The $\hat{PS}$ variable corresponds to the predicted probability of attending a private subsidized school, which is the result obtained in the first stage. In this case, all other things constant, estimator $\hat{\beta}_1$ measures the variation between a student who attended a private school versus one who attended a municipal school, controlling for school choice.

6 Results

This section examines the effects of student selection by schools on the public-private gap and its impact on the academic performance of students. For this, we first replicate the results of the earlier literature, using OLS and IV as estimation methods. The objective is to thereby show that the data and methodology used are neutral with regard to the earlier evidence. In a second stage, the results of the estimates are presented when the student selection criteria are controlled for. Finally, we quantify the effects of selection through their direct effects (selection parameters) and indirect effects (peer effects) based on the results obtained.

6.1 Student Selection in Chile

The analysis of the 2005 SIMCE data reveals that schools in Chile extensively use selection mechanisms to select the most advantaged students, including admissions tests, parental interviews, minimum scores, etc. This study identifies four criteria for measuring selection: child's ability, family income, parental interview, and religious reasons.

Table 1 contains the descriptive statistics of the selection criteria disaggregated by type of selection and its possible combinations. The statistics indicate that over 30% of students underwent some selection process when they were admitted into their present schools at the time of the SIMCE test. This proportion practically doubles in the case of private subsidized schools. Table 1 also reports the combinations of selection methods. Only 1% of all students underwent all the selection criteria.

Table 1: Student screening

	Total	**Municipal School**	**Private Subsidized School**
Selection by abilities (S1)	0,27	0,05	0,48
Selection by household income (S2)	0,01	0,00	0,02
Selection by parental interview (S3)	0,12	0,01	0,23
Selection by religious reasons (S4)	0,10	0,00	0,19
(S1) & (S2)	0,01	0,00	0,02
(S1) & (S3)	0,09	0,00	0,18
(S1) & (S4)	0,08	0,00	0,15
(S2) & (S3)	0,01	0,00	0,01
(S2) & (S4)	0,01	0,00	0,01
(S3) & (S4)	0,06	0,00	0,12
(S1) & (S2) & (S3)	0,01	0,00	0,01
(S1) & (S3) & (S4)	0,05	0,00	0,10
(S1) & (S2) & (S3) & (S4)	0,00	0,00	0,01
Some selection	0,31	0,06	0,55
Obs.	162.061	80.160	81.901

Note: Authors' calculations based on SIMCE 2005 data set.

With regard to student selection by private subsidized schools, 48% of students were chosen by ability. Only 2% were chosen by family income. 23% were chosen by parental interview and 20% for religious reasons. In contrast, municipal schools virtually do not use selection.

Table (2) presents the disaggregated descriptive statistics of the selection criteria by SES decile. The results show the significant degree of homogeneity in the selection of students. The better the SES characteristics of the students, the more they underwent some kind of selection process. On average, 65% of students from the last

Table 2: Screening by administrative dependence and SES decile

SES decile	1	2	3	4	5	6	7	8	9	10	Total
Total											
Selection by abilities (S1)	0,06	0,08	0,13	0,16	0,21	0,27	0,33	0,39	0,47	0,57	0,27
Selection by household income (S2)	0,00	0,00	0,00	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,01
Selection by parental interview (S3)	0,02	0,03	0,04	0,05	0,07	0,09	0,12	0,17	0,24	0,37	0,12
Selection by religious reasons (S4)	0,01	0,02	0,04	0,05	0,06	0,09	0,11	0,15	0,19	0,24	0,10
Some selection	0,07	0,10	0,14	0,19	0,24	0,30	0,37	0,45	0,54	0,65	0,31
Municipal											
Selection by abilities (S1)	0,01	0,02	0,03	0,03	0,04	0,06	0,08	0,10	0,14	0,24	0,05
Selection by household income (S2)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Selection by parental interview (S3)	0,01	0,00	0,00	0,00	0,00	0,01	0,01	0,01	0,02	0,05	0,01
Selection by religious reasons (S4)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Some selection	0,02	0,02	0,03	0,04	0,05	0,07	0,08	0,11	0,15	0,25	0,06
Private subsidized											
Selection by abilities (S1)	0,20	0,26	0,33	0,37	0,41	0,46	0,51	0,54	0,59	0,63	0,48
Selection by household income (S2)	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,03	0,03	0,03	0,02
Selection by parental interview (S3)	0,07	0,09	0,12	0,13	0,16	0,18	0,20	0,24	0,32	0,43	0,23
Selection by religious reasons (S4)	0,05	0,08	0,11	0,12	0,14	0,17	0,19	0,22	0,25	0,29	0,19
Some selection	0,24	0,30	0,38	0,43	0,47	0,53	0,57	0,61	0,68	0,73	0,55

Note: Authors' calculations based on SIMCE 2005 data set.

The pattern of increased selection as socio-economic level rises, also applies to private subsidized and municipal schools. As expected, while the trend is similar, the degree of selection varies significantly among types of schools.

Table 2 shows that 72% of students from the tenth decile in private subsidized schools were subject to some selection process, while only 24% of students from the first decile from the same kind of schools were subject to any screening. In those schools, 63% and 43% of students were selected by ability and parental interview respectively. Private subsidized schools favor the selection of students with better abilities and family backgrounds. Meanwhile, municipal schools display a similar pattern. Selection in the tenth decile totals 25%, mainly due to ability-based screening.

In summary, the evidence on the selection strategy used by Chilean private subsidized schools is consistent with the theory. The selection processes faced by students vary depending on their socio-economic level and the type of schools to which they apply (private or municipal). Private subsidized schools commonly use selection mechanisms, with student ability and family income as the most recurrent. Schools that use selection can be expected to reduce their educational costs through these mechanisms and also to achieve better results than schools that do not.

6.2 Replicating earlier results: Public-private gap

As already mentioned, the first studies that sought to quantify the public-private education gap in Chile used SIMCE and OLS data as estimation methods. These estimates are replicated in column 1 of panel A of Table 11. After controlling for the socio-economic characteristics of the student and the establishment characteristics, the results indicate that a child who attends a private subsidized school obtains 9.5 additional points in mathematics than a child in a municipal school. This result replicates earlier studies. [17]

In addition to the above controls, we added peer effects on results as an additional explanatory variable. This peer control includes the average schooling of fathers, mothers, and the household income of classmates. An estimate using these last controls is presented in the first column of panel B of Table 11. In this case, the gap favoring private subsidized schools drops to 2.5 points, which is also consistent with the results of the previous literature.

As discussed earlier, the above results could have selection bias due to the choice of school type by parents. Therefore, earlier studies estimated school choice in a first stage, using the supply of municipal and private subsidized establishments at a municipal level as an instrumental variable.

Table 12 shows the estimate of the selection equation of schools by parents. The results indicate that the higher the schooling level of the parents, the higher the probability of attending private subsidized schools is. This positive relationship is also observed between income and the above probability. In other words, parents with more resources have a higher probability of sending their children to those kinds of schools. Additionally, the instruments show that the higher the degree of availability of municipal schools, the lower the probability of attending private subsidized schools is. In contrast, the greater the degree of availability of private subsidized schools, the higher the likelihood of attending those schools is.

The results of earlier studies are replicated under IV methodology using the above model. The estimates that control for the socio-economic variables of the student and the characteristics of the school are presented in Table 13. These estimates show that, after controlling for peer effects, the gap favoring private subsidized schools is positive and small.

In summary, the data and methodology used in this study replicates the results reported in the literature, without controlling for the different selection categories. As such, after controlling for student selection, it can be indicated that the results of the estimates presented below are independent of the data and the methodology used.

6.3 Measuring the effects of selection on performance

The impact of school selection on the academic performance of students is obtained by estimating, in a first stage, equation (1) by OLS. The results of this estimate are presented in Table 3.[18] Columns 2-5 show the estimates after controlling for each type of selection separately, while column 6 controls for the four selection criteria simultaneously.

A first result of interest is measuring the effect on the public-private gap of including these additional controls. The estimates indicate that, after controlling for the school,

[17] See Bravo, Contreras, and Sanhueza (1999) and Mizala and Romaguera (2000).
[18] This Table summarizes the results of panel B of Table 11 presented in the Appendix.

household, peer and individual characteristics, the impact of attending a private subsidized school declines as the selection criteria are controlled for. Column 1 indicates that the contribution of attending private subsidized schools is 2.5 additional points on average, without controlling for student selection criteria.

Columns 2-5 show that, after controlling for school, individual and household characteristics, the parameters associated to the various types of selection are positive and statistically significant in all estimates. These results suggest that students who underwent some selection process obtain better results than those who did not.

Meanwhile, after controlling for the four selection criteria simultaneously, column 6 of Table 3 shows that selection by ability (S1) has the greatest impact on academic performance, with over 6.6 additional points over the sample average. The impact of selection by abilities represents 12% of the standard unconditional deviation of the mathematics SIMCE scores.

Selection by parental income (S2) has the second highest impact, contributing an additional 5 points to academic performance. Selection by parental interview (S3) is not statistically significant. Selection for religious reasons (S4) has the lowest impact, barely representing more than 1 additional point. Therefore, if a school uses the four selection methods indicated above, its students obtain 13.5 additional points on average than students from schools with no selection. This is 25% of the standard unconditional deviation of the mathematics SIMCE scores.[19]

After controlling for all the selection criteria (column 6) the parameter associated to the public-private gap remains positive but not statistically significant. These results indicate that the positive, small and statistically significant gap reported in earlier studies is explained by the selection criteria of private subsidized schools, rather than by educational advantages of those schools.

Lastly, it is to be expected that student selection practices based on shared criteria in the school will have an impact on the heterogeneity of the results in the school. Indeed, students in a given school would be more homogenous after a selection process. It could also therefore be expected that the variance of results in schools that use selection will be lower than that in schools that do not. Table 17 presents OLS estimates where the dependent variable corresponds to the intra-school standard deviation of the results in the SIMCE test. Firstly, the evidence shows that private subsidized schools have a lower dispersion of results than municipal schools. In addition, the results indicate that the dispersion of the SIMCE scores drops when selection by abilities and parental interviews are used, with the most significant effect corresponding to selection on religious grounds. The effects of income and parental interview selection on dispersion in the language test are statistically significant.

[19] Even though this result is significant, only 1% of students are selected with all four criteria (see Table 1.

Table 3: OLS estimates - Math scores

Equation						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Administrative dependence						
Private subsidized dummy	2,51	0,68	2,42	2,12	1,99	0,47
	(0.32)**	(0.34)*	(0.33)**	(0.33)**	(0.33)**	(0,34)
Screening criteria						
Selection by abilities (S1)		7,08				6,65
		(0.35)**				(0.36)**
		[0.13]				[0.12]
Selection by household income (S2)			6,83			4,74
			(1.16)**			(1.18)**
			[0.13]			[0.09]
Selection by parental interview (S3)				3,36		0,62
				(0.42)**		(0,47)
				[0.06]		[0.01]
Selection by religious reasons (S4)					3,80	1,34
					(0.44)**	(0.49)**
					[0.07]	[0.02]
Peer effects						
Average schooling of Mothers	4,22	3,90	4,18	4,19	4,09	3,83
	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**
Average schooling of Fathers	0.74	0.68	0.75	0.76	0.80	0.71
	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**
Average household income	0.09	0.07	0.09	0.07	0.08	0.06
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Controls						
Individual and household controls	Yes	Yes	Yes	Yes	Yes	Yes
School controls	Yes	Yes	Yes	Yes	Yes	Yes
Regional controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.16	0.16	0.16	0.16	0.16	0.16
Wald test (Prob > F)	-	-	-	-	-	0.00

Note: Huber/White standard errors in parentheses (* significant at 5% and ** significant at 1%.) Estimated coefficient over SIMCE score standard deviation in brackets. The last row reports the p-value of the joint hypothesis Wald test that all the selection practices have no effect. Estimations done using 161.619 observations.

6.4 Proving Robustness: Estimates by Instrumental Variables

As discussed earlier, the results on the public-private gap could be explained by the endogeneity of school choice by parents. Below we examine if the results of modeling school choice affects the results of the student selection process. For this, the type of school is modeled using the educational supply in the municipality of residence of the student's family as an instrument.

Meanwhile, a second source of selection could be self-selection by parents who choose schools based on their quality. It could potentially produce a problem of simultaneity between the selection made by parents and by schools. This could bias the estimated parameters. However, the evidence presented in Table 8 shows that the main reasons that parents give for choosing a school are not related to academic performance.[20] So, the screening to be examined is that done by schools.

[20]Furthermore, Elacqua, Schneider, and Buckley. (2006) show that the main reasons explaining the choice of school by families are related to the nearness to the home or place of work. Parents, also, do not have the necessary information to distinguish the quality of schools.

Table 4: IV Estimates- Math scores

Equation						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Administraive dependence						
Private subsidized dummy	3.18	3.03	3.47	3.74	4.41	3.73
	(2.14)	(2.14)	(2.14)	(2.15)	(2.15)*	(2.15)
Screening criteria						
Selection by abilities (S1)		7.27				6.74
		(0.33)**				(0.35)**
		[0.13]				[0.12]
Selection by household income (S2)			7.34			4.79
			(1.16)**			(1.17)**
			[0.14]			[0.09]
Selection by parental interview (S3)				3.82		0.66
				(0.42)**		(0.47)
				[0.07]		[0.01]
Selection by religious reasons (S4)					4.41	1.46
					(0.43)**	(0.49)**
					[0.08]	[0.03]
Peer effects						
Average schooling of mothers	4.48	3.96	4.42	4.39	4.26	3.87
	(0.23)**	(0.23)**	(0.23)**	(0.23)**	(0.23)**	(0.23)**
Average schooling of fothers	0.77	0.66	0.77	0.77	0.81	0.69
	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**
Average household income	0.09	0.07	0.1	0.07	0.09	0.06
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Controls						
Individual and household controls	Yes	Yes	Yes	Yes	Yes	Yes
School controls	Yes	Yes	Yes	Yes	Yes	Yes
Regional controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.16	0.16	0.16	0.16	0.16	0.16
Wald test (Prob > F)	-	-	-	-	-	0.00

Note: Huber/White standard errors in parentheses (* significant at 5% and ** significant at 1%.) Estimated coefficient over SIMCE score standard deviation in brackets. The last row reports the p-value of the joint hypothesis Wald test that all the selection practices have no effect. Estimations done using 161.619 observations.

Table 4 presents the results obtained through IV. These estimates used the expected value of type of school attended based on the prediction of the equation presented in Table 12.

The results of the estimates using instrumental variables confirm the findings in the estimates by OLS.[21] The results show that the impact of selection on educational performance is robust when considering the type of school chosen by families in a first stage.

Concerning the public-private gap, it should be highlighted that the results of the estimates by IV, after correcting for the problems of endogeneity, show that the gap favoring private subsidized schools drops to zero in statistical terms.

In summary, the estimates by MCO and IV indicate that, after controlling for family and school characteristics and student selection criteria, the public-private gap is statistically equal to zero. These estimates suggest that the selection criteria used by private subsidized schools are relevant variables for explaining the higher SIMCE test scores that they obtain relative to municipal schools.

[21] The differences between the significant coefficients of equation 6 by OLS and IV are less than 10%.

6.5 Quantifying the Effects: Direct and Indirect Effects of Student Selection

As has already been explained, schools that use screening criteria choose students with the best characteristics and which are consequently cheaper to educate. We will call this the direct effect of student selection. However, the use of selection mechanisms has a second effect in terms of academic performance. In fact, the selection process also improves the characteristics of the peers. We will call this the indirect effect. It is important to note that the earlier specifications control for peer effects. However, the effect indicated here differs from the peer effect since it considers the benefits associated to peer selection more than their direct contribution.

$$E.S. = \underbrace{\alpha}_{Direct\ effect} + \underbrace{\beta(X_s^p - X_{ns}^p)}_{Indirect\ effect} \tag{4}$$

where the vector α corresponds to the estimated coefficients of each of the selection methods. The indirect effects, captured by vector β, are calculated based on the impact on academic performance of the difference between the school peer variables that selected X_s^p, and those that did not choose X_{ns}^p. The latter seeks to measure how much an average student benefits from attending a school with good students, after controlling for peer contribution, independently of his/her conditions.

The coefficients estimated by OLS presented in column 6 of Table 3 are used to calculate equation 4. In it, all the selection coefficients are statistically significant, except for the case of parental interview. The variables associated to peer effects show a positive and significant impact on academic results. The high impact of the average schooling of mothers is noteworthy. In fact, it is six times higher than the effect of fathers' education on individual performance.

A summary of the quantification of the effects of selection on results is presented in Table 5. In each of the cases considered, the direct effect is the coefficient associated to the selection criteria.

The results of Table 5 indicate that a student that attends a school that selects by ability (S1) obtains (simply by having passed that selection criteria) a score 2.8% above students who attend a school without selection. The indirect effect of attending a school with a better level of peers adds 4.6% in the case of selection by abilities. As such, a student who attends a school that selects by abilities obtains a SIMCE score in mathematics 7.4% above that of a student in a school that does not select. The table also shows the direct and indirect effects of schools that combine different selection methods. As may be expected, the best results are obtained by students who attend schools that use all the selection methods. These students obtain a total score 13.6% higher than students from schools that do not select

Table 5: Direct and indirect effects of screening on SIMCE math scores

	Direct effect	**Indirect effect**	**Total effect**
Selection by abilities (S1)	2.8%	4.6%	7.4%
Selection by household income (S2)	2.0%	5.0%	6.9%
Selection by parental interview (S3)	0.3%	5.6%	5.9%
Selection by religious reasons (S4)	0.6%	5.4%	5.9%
(S1) & (S2)	4.8%	5.8%	10.6%
(S1) & (S3)	3.0%	6.0%	9.0%
(S1) & (S4)	3.3%	5.6%	8.9%
(S2) & (S3)	2.2%	5.0%	7.2%
(S2) & (S4)	2.5%	5.9%	8.4%
(S3) & (S4)	0.8%	5.9%	6.7%
(S1) & (S2) & (S3)	5.0%	5.7%	10.7%
(S1) & (S2) & (S3) & (S4)	5.6%	8.0%	13.6%

Notas: Results are relative to the average score of $239,6$ points of children attaining schools without any selection practices. The direct effects corresponds to the coefficient estimated by equation 6 in table (3). The indirect effects are calculated as the difference in the peers' variables (average schooling of mothers and fathers and household average income) multiplied by the estimated coefficients.

7 Conclusions

The provision of education through the introduction of competition and incentive mechanisms (demand-side subsidies or vouchers) has been widely debated in the literature. This kind of system was implemented in Chile in the early 1980s. Educational establishments receive a direct common subsidy from the government for each student admitted to a public or private subsidized school.

The Chilean experience is the most significant international example of a competition and incentive-based educational system. It is one of the few nationwide systems in the world and is backed by over 20 years of data.

The above framework assumes the existence of an education market that operates as expected. There are at least two characteristics of the Chilean system that call into question the functionality of this market. First, the evidence suggests that parents do not necessarily choose schools on the basis of quality, which is a key element for strengthening (weakening) good (bad) schools. In fact, Elacqua, Schneider, and Buckley. (2006) show that the main reasons behind school choice by families is the nearness to the home or place of work. In addition, parents do not have the necessary information to compare the quality of schools.

A second questionable characteristic is that public schools are obligated to accept all students, while private subsidized schools can select students in accordance with their educational objectives. Furthermore, private subsidized schools are allowed to operate for profit. As such, in order to minimize costs, private subsidized schools will logically select students that are less expensive to educate; in other words, students with greater skills and from higher socio-economic groups (direct selection effect). The process of selection also improves the peer characteristics (indirect effect).

This study provides evidence on the use of student selection mechanisms applied by private subsidized schools in a competitive context. The selection criteria are grouped into four categories: student ability, family income, parental interviews, and religious selection. This

evidence indicates that the different selection methods are widely used by private subsidized schools, and especially in schools with high socio-economic profiles. As the theory suggests, student ability selection is the most frequently used, and produces the greatest effects on subsequent academic results.

The results by OLS and IV indicate that, after controlling for family and school characteristics and student selection criteria, the public-private gap shown in earlier studies drops to zero after controlling for the selection criteria used.

The results indicate that a student who attends a school that selects by abilities (S1) obtains (simply by having passed that selection criteria) a score 2.8% above students who attend a school without selection. The indirect effect of attending a school with a better level of peers adds 4.6% in the case of selection by abilities . As such, a student who attends a school that selects by abilities obtains a SIMCE score in mathematics 7.4% above that of a student in a school that does not select.

In summary, holding all else constant, a student attending a school that uses selection criteria obtains 6-14% higher results in standardized mathematics tests than a student from a school that does not use selection.

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A Appendix: Tables

Table 6: Variable description

Variable	Description
SIMCE score	
Math	SIMCE math scores
Language	SIMCE language scores
Student variables	
Gender	1=Female, 0=Male
Household variables	
Mother schooling	Mother years of schooling
Father schooling	Father years of schooling
Household income	Household income in chilean pesos divided by 10.000
Household size	Number of people living in student family
Peer effects	
Average schooling of mothers	Schooling average of all of the classroom's mothers
Average schooling of fathers	Schooling average of all of the classroom's fathers
Average household income	Average household income of the classroom
School variables	
Private subsidized	Dummy variable; 1 if student attend private subsidized school, 0 if municipal school
Rural	Dummy variable, 1 if student lives in rural zone; 0 if urban zone
Class size	Number of students per class
School size	Number of students at schools' 4th grade
Teacher age	4th grade teacher's age
Teacher experience	4th grade teacher's experience
Teacher gender	1=Female, 0=Male
Teacher studies	Dummy variable; 1 if teacher have postgraduate studies, 0 if not
Screening criteria	
Selection by abilities	1 if student undertook admission tests such as game sessions or written exams, 0 if not
Selection by household income	1 if parent were asked to present wage or income certificates, 0 if not
Selection by parental interview	1 if school required an interview with the student parents, 0 if not
Selection by religious reasons	1 if school required baptismal or religious marriage certificate, 0 if not
Regional dummies	
D1 to D12	Dummy variable equals 1 for each of the 12 country regions, 0 for Metropolitan region (RM)

Table 7: Descriptive statistics

Variables	Total	Municipal	Private subsidized
SIMCE scores 2005			
Math	248,0	237,4	258,4
	[54,0]	[53,0]	[52,0]
Language	256,1	245,3	266,6
	[52,0]	[51,3]	[50,0])
Student variables			
Gender	0,5	0,5	0,5
	(0,0)	(0,5)	(0,5)
Household variables			
Mother schooling	10,8	9,7	11,8
	(3,0)	(3,2)	(3,0)
Father schooling	10,8	9,8	11,9
	(3,0)	(3,4)	(3,2)
Household income	249.997	174.859	323.538
	(252.126)	(162.244)	(298.474)
Household size	5,0	5,1	4,8
	(2,0)	(1,8)	(1,6)
Peer effects			
Average schooling of mothers	10,8	9,7	11,8
	(2,0)	(1,6)	(1,8)
Average schooling of fathers	10,7	9,6	11,8
	(2,0)	(1,5)	(1,7)
Average Household income	246.399	171.619	319.589
	(158.279)	(77.219)	(181.400)
School variables			
Administrative dependence		49%	51%
Rural	0,1	0,2	0,0
	(0,0)	(0,4)	(0,2)
Class size	32,8	30,9	34,6
	(9,0)	(9,3)	(8,5)
School size	78,6	72,8	84,2
	(61,0)	(44,0)	(73,5)
Teacher variables			
Teacher age	46,1	49,9	42,4
	(10,0)	(9,1)	(10,4)
Teacher experience	20,4	24,9	16,1
	(12,0)	(11,0)	(11,3)
Teacher gender	0,8	0,9	0,8
	(0,0)	(0,3)	(0,4)
Teacher studies	0,4	0,4	0,4
	(0,0)	(0,5)	(0,5)
Screening criteria			
Selection by abilities	0,3	0,1	0,5
	(0,0)	(0,2)	(0,5)
Selection by household income	0,01	0,00	0,02
	(0,0)	(0,0)	(0,1)
Selection by parental interview	0,1	0,0	0,2
	(0,0)	(0,1)	(0,4)
Selection by religious reasons	0,1	0,0	0,2
	(0,0)	(0,0)	(0,4)
Observations	162.061	80.160	81.901

Note: Own calculations based on SIMCE 2005 data set. Variable's average shown and standard deviation presented in parentheses.

Table 8: Which was the main reason you decided to enrol the student in this school?

	Municipal	Private subsidized
School nearness to home	40.69	20.97
Other family member studies or studied at the school	20.39	16.43
Good socioeconomic and cultural level of students	0.34	1.05
Establishment with JEC (full time classes)	3.18	2.00
The school fees are within the family's posibilities	10.10	8.51
It was the only school that admitted the child	0.67	0.44
It was the only school in the county	0.79	0.03
Parents work at the school	0.49	0.95
Other	2.71	3.27
Acumulated	**79.4**	**53.7**
School teaches moral values	3.14	14.67
Prestige of the establishment	12.75	22.15
School has good average scores in SIMCE tests	1.18	1.33
School has good average scores in the University Selection Test (UST)	0.07	0.53
The establishment has good infrastructure (buildings, labs, sport fields, etc.)	0.25	0.67
The establishment was recommended by someone trustful	3.25	7.02
Acumulated	20.64	46.37
TOTAL	100.0	100.0

Table 9: Math estimations for Regions and Metropolitan area (OLS and IV)

	OLS			IV		
	Metropolitan Area	Regions	Total	Metropolitan area	Regions	Country
Administrative dependence						
Private subsidized (Estimated)	1,93	-1,16	0,47	0,22	-9,41	3,73
	(0,52)**	(0.47)*	(0,34)	(2,79)	(3.25)**	(2,15)
Screening criteria						
Selection by abilities (S1)	5,28	7,32	6,65	5,68	7,12	6,74
	(0,51)**	(0.52)**	(0.36)**	(0,50)**	(0.51)**	(0.35)**
	[0.1]	[0.14]	[0.12]	[0.11]	[0.13]	[0.12]
Selection by household income (S2)	14,04	0,13	4,74	14,16	0,03	4,79
	(2,01)**	(1,44)	(1.18)**	(2,01)**	(1,45)	(1.17)**
	[0.26]	[0.00]	[0.09]	[0.26]	[0.00]	[0.09]
Selection by parental interview (S3)	1,74	0,66	0,62	1,79	0,55	0,66
	(0,71)*	(0,62)	(0,47)	(0,71)*	(0,62)	(0,47)
	[0.03]	[0.01]	[0.01]	[0.03]	[0.01]	[0.01]
Selection by religious reasons (S4)	-2,20	4,17	1,34	-2,00	3,81	1,46
	(0,75)**	(0.66)**	(0.49)**	(0,75)**	(0.65)**	(0.49)**
	[0.04]	[0.08]	[0.02]	[0.04]	[0.07]	[0.03]
Peer effects						
Average schooling of mothers	4,52	3,34	3,83	4,8	3,27	3,87
	(0,45)**	(0.28)**	(0.24)**	(0,44)**	(0.28)**	(0,23)**
Average schooling of fathers	1,41	0,58	0,71	1,4	0,65	0,69
	(0,46)**	(0.28)*	(0.24)**	(0,46)**	(0.28)*	(0,24)**
Average Household income	-0,02	0,1	0,06	-0,03	0,1	0,06
	(0,03)	(0.02)**	(0.02)**	(0,03)	(0.02)**	(0,02)**
Controls						
Individual and household controls	Yes	Yes	Yes	Yes	Yes	Yes
Peer effects controls	Yes	Yes	Yes	Yes	Yes	Yes
School controls	Yes	Yes	Yes	Yes	Yes	Yes
Regional controls	No	No	Yes	No	No	Yes
R2	0,16	0,16	0,16	0,16	0,16	0,16
Wald test (Prob > F)	0,00	0,00	0,00	0,00	0,00	0,00

Note: Huber/White standard errors in parentheses (* significant at 5% and ** significant at 1%.) Estimated coefficient over SIMCE score standard deviation in brackets. The last row reports the p-value of the joint hypothesis Wald test that all the selection practices have no effect. Estimations done using 161.619 observations.

Table 10: What prerequisites or background information is required by the school?

	Total	Municipal	Private subsidized
1. Birth certificate	1,00	1,00	1,00
2. Pre-school grades	0,04	0,02	0,05
3. Legal wedding certificate	0,01	0,00	0,01
4. Former school grades	0,15	0,07	0,23
5. Baptismal or religious wedding	0,10	0,00	0,19
6. The child had to attend a game session	0,00	0,00	0,002
7. Wage certificates	0,01	0,00	0,02
8. The child had to undertake a written exam or admission test	0,26	0,05	0,46
9. Parental interview	0,12	0,01	0,23
Obs.	162,061	80,160	81,901

Table 12: Parental school choice

Parental school choice equation	
Student household variables	
Gender	0.01
	(0.01)*
Household variables	
Mother schooling	0.04
	(0.00)**
Father schooling	0.058
	(0.00)**
Household income	0.01
	(0.00)**
Household size	-0.04
	(0.00)**
Rural	-0.52
Identification variables	
	(0.01)**
Number of Municipal schools in the county	-0.01
	(0.00)**
Number of Private Subsidized schools in the county	0.01
	(0.00)**
County size (KM^2)	0
	(0.00)**
People in county (Thousands)	0
	0
Constant	-0.91
	(0.02)**
Obs	162.061

Table 11: Estimaciones Matemáticas: OLS

SIMCE Math Scores												
	Panel A						Panel B					
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Student variables												
Mujer=1	-3,78	-3,95	-3,73	-3,88	-3,99	-4,01	-3,97	-4,06	-3,93	-4	-4,07	-4,07
	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**
Household variables												
Mothers schooling	2,7	2,6	2,7	2,7	2,7	2,6	2,01	2,01	2,01	2,01	2,01	2,01
	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**
Father schooling	1,95	1,88	1,95	1,92	1,94	1,87	1,49	1,49	1,49	1,49	1,49	1,49
	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.05)**
Household income	0,19	0,17	0,19	0,17	0,18	0,16	0,08	0,08	0,08	0,08	0,08	0,08
	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**
Household size	-1,61	-1,55	-1,61	-1,59	-1,6	-1,55	-1,32	-1,31	-1,32	-1,32	-1,32	-1,32
	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**
Peer effects												
Average schooling of mothers							4,22	3,9	4,18	4,19	4,09	3,83
							(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**
Average schooling of fathers							0,74	0,68	0,75	0,76	0,8	0,71
							(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**
Average household income							0,09	0,07	0,09	0,07	0,08	0,06
							(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
School variables												
Private subsidized	9,53	5,54	9,37	7,97	8,21	4,86	2,51	0,68	2,42	2,12	1,99	0,47
	(0.30)**	(0.32)**	(0.30)**	(0.31)**	(0.31)**	(0.33)**	(0.32)**	(0.34)*	(0.33)**	(0.33)**	(0.33)**	(0,34)
Rural	6,55	5,73	6,52	6,32	5,92	5,53	10,98	10,06	10,94	10,81	10,59	9,93
	(0.49)**	(0.49)**	(0.49)**	(0.49)**	(0.49)**	(0.49)**	(0.51)**	(0.51)**	(0.51)**	(0.51)**	(0.51)**	(0.51)**
Class size	0,38	0,31	0,38	0,35	0,32	0,28	0,23	0,19	0,23	0,22	0,2	0,18
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
School size	0,02	0,02	0,02	0,03	0,03	0,02	0,02	0,01	0,02	0,02	0,02	0,01
	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**
Teacher variables												
Teacher age	-0,21	-0,19	-0,2	-0,2	-0,22	-0,19	-0,16	-0,15	-0,16	-0,16	-0,16	-0,16
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Teacher experience	0,34	0,31	0,34	0,33	0,33	0,31	0,27	0,26	0,27	0,27	0,27	0,26
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Teacher gender	3,25	3,19	3,29	3,12	3,15	3,13	2,18	2,25	2,22	2,17	2,15	2,26
	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**
Teacher studies	0,66	0,48	0,61	0,52	0,62	0,4	0,04	-0,01	0,01	0,01	0,04	-0,04
	(0.26)**	(0,25)	(0.26)*	(0.26)*	(0.26)*	(0,25)	(0,25)	(0,25)	(0,25)	-0,25	-0,25	(0,25)
Screening criteria												
Selection by abilities (S1)		11,2				9,81		7,08				6,65
		(0.34)**				(0.36)**		(0.35)**				(0.36)**
Selection by household income (S2)			9,11			4,61			6,83			4,74
			(1.18)**			(1.18)**			(1.16)**			(1.18)**
Selection by parental interview (S3)				8,37		3,84				3,36		0,62
				(0.41)**		(0.46)**				(0.42)**		(0,47)
Selection by religious reasons (S4)					7,39	2,07					3,8	1,34
					(0.44)**	(0.49)**					(0.44)**	(0.49)**
Regional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	181,17	185,34	181,52	183,25	184,68	186,94	148,71	154,01	149,17	149,85	151,05	155,04
	(1.26)**	(1.26)**	(1.26)**	(1.26)**	(1.28)**	(1.28)**	(1.54)**	(1.56)**	(1.54)**	(1.55)**	(1.57)**	(1.58)**
Obs.	161619	161619	161619	161619	161619	161619	161619	161619	161619	161619	161619	161619
R-squared	0,14	0,15	0,14	0,14	0,14	0,15	0,16	0,16	0,16	0,16	0,16	0,16
Wald test (Prob > F)	-	-	-	-	-	0,00	-	-	-	-	-	0,00

Note: Huber/White standard errors in parentheses (* significant at 5% and ** significant at 1%.) Estimated coefficient over SIMCE score standard deviation in brackets. The last row reports the p-value of the joint hypothesis Wald test that all the selection practices have no effect. Estimations done using 161.619 observations.

Table 13: Estimaciones Matemáticas por IV

SIMCE Math scores												
	Panel A						Panel B					
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Student varibales												
Gender	-3,82	-4,03	-3,76	-3,96	-4,15	-4,12	-3,98	-4,07	-3,94	-4,02	-4,1	-4,09
	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**
Household variables												
Mother schooling	2,4	2,3	2,4	2,3	2,3	2,3	1,94	1,95	1,93	1,93	1,92	1,93
	(0.07)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**
Father schooling	1,76	1,69	1,75	1,7	1,7	1,65	1,44	1,45	1,44	1,43	1,43	1,44
	(0.06)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**
Household income	0,15	0,13	0,15	0,12	0,13	0,11	0,07	0,07	0,07	0,07	0,07	0,07
	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**
Household size	-1,39	-1,35	-1,39	-1,35	-1,34	-1,32	-1,28	-1,27	-1,28	-1,27	-1,26	-1,26
	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**
Peer effects												
Average schooling of mothers							4,48	3,96	4,42	4,39	4,26	3,87
							(0.23)**	(0.23)**	(0.23)**	(0.23)**	(0.23)**	(0.23)**
Average schooling of fathers							0,77	0,66	0,77	0,77	0,81	0,69
							(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**
Average household income							0,09	0,07	0,1	0,07	0,09	0,06
							(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
School variables												
Private subsidized (Estimated)	21,03	16,31	21,32	20,43	22,47	17,36	3,18	3,03	3,47	3,74	4,41	3,73
	(2.15)**	(2.14)**	(2.14)**	(2.14)**	(2.14)**	(2.14)**	(2,14)	(2,14)	(2,14)	(2,15)	(2.15)*	(2,15)
Rural	8,74	7,7	8,79	8,67	8,39	7,75	11,44	10,53	11,45	11,36	11,22	10,51
	(0.62)**	(0.62)**	(0.62)**	(0.62)**	(0.62)**	(0.62)**	(0.62)**	(0.62)**	(0.62)**	(0.62)**	(0.62)**	(0.62)**
Class size	0,43	0,32	0,42	0,38	0,33	0,28	0,23	0,19	0,23	0,22	0,2	0,18
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
School size	0,02	0,01	0,02	0,02	0,02	0,02	0,02	0,01	0,02	0,02	0,02	0,01
	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**
Teacher variables												
Teacher age	-0,26	-0,21	-0,26	-0,24	-0,26	-0,21	-0,17	-0,16	-0,17	-0,17	-0,17	-0,16
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Teacher experience	0,25	0,26	0,26	0,26	0,26	0,27	0,25	0,25	0,25	0,25	0,25	0,26
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Teacher gender	2,69	2,91	2,76	2,65	2,66	2,88	2	2,21	2,05	2,01	2,01	2,24
	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**
Teacher studies	0,36	0,3	0,3	0,24	0,37	0,24	-0,06	-0,03	-0,09	-0,08	-0,04	-0,05
	(0,26)	(0,25)	(0,26)	(0,26)	(0,26)	(0,25)	(0,25)	(0,25)	(0,25)	(0,25)	(0,25)	(0,25)
Screening Criteria												
Selection by abilities (S1)		13,31				11,21		7,27				6,74
		(0.31)**				(0.34)**		(0.33)**				(0.35)**
Selection by household income (S2)			12,05			5,04			7,34			4,79
			(1.17)**			(1.18)**			(1.16)**			(1.17)**
Selection by parental interview(S3)				11,15		4,39				3,82		0,66
				(0.39)**		(0.45)**				(0.42)**		(0,47)
Selection by religious reasons (S4)					10,88	3,22					4,41	1,46
					(0.42)**	(0.49)**					(0.43)**	(0.49)**
Control by Regions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	182,36	185,44	182,64	183,99	186,01	186,8	147,49	153,48	147,97	148,81	150,17	154,47
	(1.33)**	(1.33)**	(1.33)**	(1.33)**	(1.34)**	(1.33)**	(1.58)**	(1.60)**	(1.58)**	(1.58)**	(1.60)**	(1.62)**
Obs.	161619	161619	161619	161619	161619	161619	161619	161619	161619	161619	161619	161619
R2	0,14	0,15	0,14	0,14	0,14	0,15	0,16	0,16	0,16	0,16	0,16	0,16
Wald test (Prob > F)	-	-	-	-	-	0,00	-	-	-	-	-	0,00

Note: Huber/White standard errors in parentheses (* significant at 5% and ** significant at 1%.) Estimated coefficient over SIMCE score standard deviation in brackets. The last row reports the p-value of the joint hypothesis Wald test that all the selection practices have no effect. Estimations done using 161.619 observations.

Table 14: Stratification

		SIMCE Math scores			Mothers schooling average			Father schooling Average			Average household Income		
Decile	% en PS	MUN	PS	SE	MUN	PS	SE	MUN	PS	SE	MUN	PS	SE
1	25.0%	217.5	220.3	*	8.5	9.1	*	8.5	9.2	*	13.3	16.3	*
2	28.1%	225.9	231.7	*	9.0	10.0	*	9.0	10.0	*	14.4	18.8	*
3	34.3%	230.9	238.0	*	9.3	10.5	*	9.4	10.6	*	15.5	21.1	*
4	40.4%	237.2	245.8	*	9.6	11.0	*	9.7	11.0	*	16.5	23.0	*
5	47.8%	241.7	250.2	*	9.9	11.3	*	10.0	11.3	*	17.6	25.0	*
6	54.2%	249.3	255.5	*	10.2	11.6	*	10.3	11.7	*	18.6	27.4	*
7	62.7%	253.9	262.9	*	10.5	12.0	*	10.6	12.0	*	20.2	30.3	*
8	71.7%	259.1	269.1	*	10.8	12.4	*	11.0	12.5	*	22.7	35.9	*
9	79.6%	267.6	277.7	*	11.3	13.0	*	11.5	13.2	*	27.4	44.9	*
10	87.0%	280.8	288.8	*	12.0	13.7	*	12.2	14.0	*	35.8	60.0	*
Total	50.5%	237.41	258.41	*	9.63	11.76	*	9.70	11.84	*	17.16	31.96	*

Nota: Data has been separated according to socioeconomic deciles, for which and index was constructed by principal components methodology using fathers'and mothers' education, household income and size. For each variable, in the SS column (statistic significance) the * indicates that, for each socioeconomic decile, the difference between public and private schools is significant at 1%

Table 15: Estimations using different criteria to define the selection variables

	OLS - Math				IV - Math			
Variables	(a) 50%	(b) 75%	(c) Average Answer	(d) Parents answer	(a) 50%	(b) 75%	(c) Average Answer	(d) Parents answer
Student variables								
Gender	-4.07	-4.03	-4.1	-4.05	-4.09	-4.05	-4.11	-4.07
	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**	(0.25)**
Household variables								
Mother schooling	2.01	2.01	2.01	2.00	1.93	1.94	1.97	1.94
	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**
Father schooling	1.49	1.49	1.49	1.49	1.44	1.44	1.46	1.45
	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**
Household income	0.08	0.08	0.08	0.08	0.07	0.07	0.08	0.08
	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**
Household size	-1.32	-1.33	-1.31	-1.31	-1.26	-1.28	-1.28	-1.27
	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**
Peer effects								
Average schooling of mothers	3.83	3.93	3.59	3.95	3.87	4.01	3.55	4.05
	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.23)**	(0.23)**	(0.24)**	(0.23)**
Average schooling of fathers	0.71	0.8	0.71	0.74	0.69	0.79	0.68	0.74
	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**
Average household income	0.06	0.06	0.07	0.08	0.06	0.06	0.07	0.08
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
School variables								
Private subsidized	0.47	0.97	-0.63	1.17	3.73	3.33	1.96	2.98
	(0.34)	(0.33)**	(0.35)	(0.34)**	(2.15)	(2.15)	(2.15)	(2.15)
Rural	9.93	9.82	9.74	10.39	10.51	10.32	10.11	10.82
	(0.51)**	(0.51)**	(0.51)**	(0.51)**	(0.62)**	(0.62)**	(0.62)**	(0.62)**
Class size	0.18	0.18	0.15	0.19	0.18	0.18	0.16	0.19
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
School size	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**	(0.00)**
Teacher variables								
Teacher age	-0.16	-0.16	-0.15	-0.16	-0.16	-0.16	-0.15	-0.16
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Teacher experience	0.26	0.26	0.25	0.26	0.26	0.25	0.26	0.25
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Teacher gender	2.26	2.21	2.24	2.18	2.24	2.15	2.29	2.1
	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**	(0.35)**
Teacher studies	-0.04	0.04	-0.03	0.02	-0.05	0.00	0.00	-0.02
	(0.25)	(0.25)	(0.25)	(0.25)	(0.25)	(0.25)	(0.25)	(0.25)
Screening criteria								
Selection by abilities (S1)	6.65	7.79	13.81	5.46	6.74	7.99	13.5	5.66
	(0.36)**	(0.41)**	(0.59)**	(0.32)**	(0.35)**	(0.40)**	(0.57)**	(0.32)**
Selection by parental interview (S2)	4.74	9.41	4.68	0.73	4.79	9.44	4.64	0.71
	(1.18)**	(2.50)**	(1.57)**	-0.64	(1.17)**	(2.50)**	(1.57)**	(0.64)
Selection by household income (S3)	0.62	-1.63	-3.5	-1.77	0.66	-1.6	-3.61	-1.72
	(0.47)	(0.60)**	(0.88)**	(0.32)**	(0.47)	(0.60)**	(0.88)**	(0.32)**
Selection by religious reasons (S4)	1.34	2.71	2.45	2.25	1.46	2.9	2.4	2.49
	(0.49)**	(0.59)**	(0.68)**	(0.45)**	(0.49)**	(0.59)**	(0.68)**	(0.45)**
Constant	155.04	153.97	157.22	152.47	154.47	153.36	156.82	151.92
	(1.58)**	(1.57)**	(1.59)**	(1.56)**	(1.62)**	(1.61)**	(1.62)**	(1.60)**
Obs.	161619	161619	161619	161619	161619	161619	161619	161619
R-squared	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16

Notas: Standard errors in parenthesis, while the ratio of the coefficient of the dependent variable's standard deviation is shown in brackets. Statistical significance is denoted by * at 5% and by ** at 1%. The table shows how the estimated coefficients change when using each of the four alternative definitions for selection; (a) when the selection is defined as $s = 1$ *si sprom* $> 50\%$ and (b) same case but using a 75% as criteria; (c) when the average of the school's parents answers are used (continuous var.) and (d) when the parents' answers are used individually.

Table 16: Language results using different criteria to construct the selection variables

	Language - OLS				Language - IV			
	(a)	(b)	(c)	(d)	(a)	(b)	(c)	(d)
Variables	50%	75%	Average Answer	Parents answer	50%	75%	Average Answer	Parents answer
Student variables								
Gender	6.61	6.67	6.58	6.65	6.58	6.65	6.56	6.63
	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**	(0.24)**
Household variables								
Mother schooling	1.96	1.96	1.96	1.96	1.89	1.90	1.92	1.90
	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.07)**	(0.07)**	(0.07)**	(0.07)**
Father schooling	1.5	1.5	1.51	1.51	1.46	1.46	1.48	1.47
	(0.05)**	(0.05)**	(0.05)**	(0.05)**	(0.06)**	(0.06)**	(0.06)**	(0.06)**
Household income	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07
	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**	(0.01)**
Household size	-1.67	-1.68	-1.67	-1.67	-1.63	-1.64	-1.64	-1.63
	(0.07)**	(0.07)**	(0.07)**	(0.07)**	(0.08)**	(0.08)**	(0.08)**	(0.08)**
Peer effects								
Average schooling of mothers	3.87	3.97	3.66	3.98	3.99	4.16	3.7	4.17
	(0.23)**	(0.23)**	(0.23)**	(0.23)**	(0.23)**	(0.22)**	(0.23)**	(0.22)**
Average schooling of fathers	0.54	0.61	0.55	0.56	0.54	0.64	0.55	0.59
	(0.23)*	(0.23)**	(0.23)*	(0.23)*	(0.23)*	(0.23)**	(0.23)*	(0.23)*
Average household income	0.03	0.03	0.04	0.05	0.03	0.03	0.04	0.05
	(0.02)*	(0.02)	(0.02)*	(0.02)**	(0.02)*	-0.02	(0.02)*	(0.02)**
school variables								
Private Subsidized	1.68	2.18	0.72	2.33	3.53	3.08	2.19	2.73
	(0.33)**	(0.32)**	(0.34)*	(0.32)**	(2.07)	(2.07)	(2.07)	(2.07)
Rural	10.9	10.87	10.73	11.35	11.36	11.24	11.04	11.67
	(0.49)**	(0.49)**	(0.49)**	(0.49)**	(0.59)**	(0.60)**	(0.59)**	(0.59)**
Class size	0.2	0.2	0.17	0.21	0.19	0.2	0.17	0.21
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Schools size	0.01	0	0	0.01	0.01	(0.00)	(0.00)	0.01
	(0.00)**	(0.00)	(0.00)	(0.00)**	(0.00)*	(0.00)	(0.00)	(0.00)*
Teacher variables								
Teacher age	-0.1	-0.1	-0.1	-0.1	-0.1	-0.11	-0.1	-0.11
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Teacher experience	0.17	0.17	0.17	0.17	0.16	0.15	0.16	0.15
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Teacher gender	3.37	3.34	3.36	3.31	3.26	3.19	3.32	3.14
	(0.34)**	(0.34)**	(0.34)**	(0.34)**	(0.34)**	(0.34)**	(0.34)**	(0.34)**
Teacher studies	-0.07	-0.02	-0.07	-0.02	-0.13	-0.11	-0.09	-0.12
	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)	(0.24)
Screening criteria								
Selection by abilities	5.64	6.84	11.21	4.46	6.03	7.32	11.52	4.87
	(0.35)**	(0.39)**	(0.57)**	(0.31)**	(0.34)**	(0.39)**	(0.55)**	(0.31)**
Selection by household income	3.16	6.24	2.69	0.89	3.28	6.19	2.58	0.87
	(1.12)**	(2.56)*	(1.51)	(0.61)	(1.12)**	(2.56)*	(1.51)	(0.61)
Selection by parental interview	0.64	-0.22	-2.09	-1.15	0.75	-0.22	-1.94	-1.04
	(0.45)	(0.58)	(0.85)*	(0.31)**	(0.45)	(0.58)	(0.84)*	(0.31)**
Selection by religious reasons	2.56	2.71	4.13	2.99	2.88	3.09	4.3	3.43
	(0.47)**	(0.56)**	(0.65)**	(0.43)**	(0.47)**	(0.56)**	(0.65)**	(0.43)**
Constant	159.66	158.39	161.44	157.14	159.19	157.73	161.18	156.55
	(1.54)**	(1.52)**	(1.54)**	(1.52)**	(1.57)**	(1.56)**	(1.57)**	(1.55)**
Observations	161253	161253	161253	161253	161253	161253	161253	161253
R-squared	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16

Notas: Standard errors in parenthesis, while the ratio of the coefficient of the dependent variable's standard deviation is shown in brackets. Statistical significance is denoted by * at 5% and by ** at 1%. The table shows how the estimated coefficients change when using each of the four alternative definitions for selection; (a) when the selection is defined as $s = 1$ *si* $sprom > 50\%$ and (b) same case but using a 75% as criteria; (c) when the average of the school's parents answers are used (continuous var.) and (d) when the parents' answers are used individually.

Table 17: Screening effects over results' dispersion within schools

	OLS - SIMCE Math Scores					SIMCE Language Scores				
	1	2	3	4	5	1	2	3	4	5
Private subsidized	-1.60	-2.00	-1.78	-1.71	-1.37	-1.46	-1.82	-1.59	-1.57	-1.24
	(0.46)**	(0.45)**	(0.45)**	(0.45)**	(0.46)**	(0.43)**	(0.42)**	(0.43)**	(0.43)**	(0.44)**
Selection by abilities	-2.32				-1.61	-2.13				-1.40
	(0.58287)**				(0.61236)**	(0.55155)**				(0.57923)*
Selection by parental interview		-3.56			-1.73		-4.73			-2.97
		2.34			2.36		(2.20990)*			2.23
Selection by household income			-2.50		-1.47			-2.73		-1.83
			(0.67161)**		(0.72)*			(0.63515)**		(0.68)**
Selection by religious reasons				-3.41	-2.08				-3.08	-1.62
				(0.85559)**	(0.93)*				(0.80968)**	0.88
Percentage of women by classroom	-3.50	-3.75	-3.58	-3.22	-3.21	-3.80	-4.05	-3.86	-3.55	-3.58
	(0.90)**	(0.90)**	(0.90)**	(0.91)**	(0.91)**	(0.86)**	(0.86)**	(0.85)**	(0.86)**	(0.86)**
Mother schooling	0.47	0.43	0.44	0.46	0.48	0.30	0.27	0.27	0.29	0.31
	(0.18)**	(0.18)*	(0.18)*	(0.18)**	(0.18)**	0.17	0.17	0.17	0.17	0.17
Father schooling	-0.08	-0.09	-0.09	-0.09	-0.08	0.16	0.15	0.14	0.15	0.15
	0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.17	0.17
Household Income	-0.08	-0.09	-0.07	-0.09	-0.07	-0.10	-0.11	-0.09	-0.10	-0.09
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
Household size	0.15	0.20	0.21	0.19	0.17	0.02	0.07	0.08	0.05	0.05
	0.30	0.30	0.30	0.30	0.30	0.28	0.28	0.28	0.28	0.28
Rural	-2.11	-2.35	-2.27	-2.10	-1.94	-2.05	-2.26	-2.18	-2.04	-1.90
	(0.58)**	(0.57)**	(0.57)**	(0.58)**	(0.58)**	(0.55)**	(0.54)**	(0.54)**	(0.55)**	(0.55)**
Class size	0.19	0.18	0.18	0.19	0.20	0.16	0.15	0.16	0.17	0.17
	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.03)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**	(0.02)**
School size	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.00	-0.01	0.00	0.00
	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Teacher age	-0.01	-0.01	-0.01	0.00	0.00	0.02	0.02	0.02	0.02	0.02
	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03
Teacher experience	-0.02	-0.03	-0.02	-0.02	-0.02	-0.04	-0.04	-0.04	-0.04	-0.04
	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Teacher gender	1.32	1.36	1.36	1.37	1.31	0.69	0.72	0.72	0.73	0.68
	(0.47)**	(0.47)**	(0.47)**	(0.47)**	(0.47)**	0.45	0.45	0.45	0.45	0.45
Teacher studies	-0.17	-0.18	-0.17	-0.19	-0.16	0.25	0.25	0.26	0.24	0.27
	0.38	0.38	0.38	0.38	0.38	0.36	0.36	0.36	0.36	0.36
Regional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	42.39	43.14	42.63	41.95	41.42	42.37	43.00	42.48	41.98	41.44
	(2.74)**	(2.73)**	(2.74)**	(2.75)**	(2.75)**	(2.59)**	(2.59)**	(2.59)**	(2.60)**	(2.60)**
Observations	5,030	5,030	5,030	5,030	5,030	5,028	5,028	5,028	5,028	5,028
R-squared	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09

Notas: The dependent variable corresponds to the standard deviation of the students scores within schools. Huber/White standard errors in parentheses (* significant at 5% and ** significant at 1%.) Estimated coefficient over SIMCE score standard deviation in brackets. The p-value of the joint hypothesis Wald test of all the selection practices is reported as zero. Estimations done using 161.619 observations.