Student mobility in low quality schools. Segmentation among the most vulnerable students.

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Summary

This study addresses the phenomenon of permanence for long years of low performance (urban) schools, measured by SIMCE. We also analyze mobility of students to other schools of same or better quality. The results show that student´s mobility rates in these schools is almost 11%. Almost 30% of the students who change school go to a school of the same or worse quality. Students with greater probabilities of changing to better performance (higher quality) schools are those pertaining to groups with greater economic resources and cultural capital or better academic performance, which could account for strong segmentation that exists in the Chilean educational system.

Key words: Election of schools, Determinants of the change for low quality schools, outflow of students, Chile

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1. Introduction

Chile's educational reform that emerged in the early '90s undertook the challenge of improving the quality of the system and of significantly reducing the gap between (public and private) schools. Such process built on what was already in place in the '80s, but did not significantly modify its structure (García-Huidobro & Cox, 1999; Cox, 2003). It was assumed that the voucher would promote competition between public and private agents responsible for the educational services, being thereby able to improve the quality of the system and its schools (Aedo & Sapelli, 2001; Gallego, 2002; Elacqua, 2004; Mizala, Romaguera & Ostoic, 2004; Hsieh & Urquiola, 2006; Drago & Paredes, 2011). This gave rise to a quasi-market educational system, based on the principle of election of school on the part of the parents and on competition between providers to enroll students thereby gaining access to government financial support in direct relationship with the number of students (Gallegos, 2006; Corvalán, 2007; Paredes & Ugarte, 2011). Notwithstanding the fact that there is a significant intervention of the state through the MINEDUC to improve the performance of schools that take care of vulnerable children and of low performance schools, the market is responsible for looking for better quality as a consequence of regulations and opening to private players. It was expected, then, that the diversity of the supply, as well as the decision and the capacity of parents to select the school to educate their children would become the main factor that unleashes permanent competition (for students and openings) and would put pressure to increase the quality of education provided by each educational institution, thereby forcing the school owners to either improve the service or to close.

After decades of implementation of this policy, it is worth studying the phenomenon of permanence of poor quality schools in this theoretically competitive environment. As indicated above, they should tend to disappear (or to improve) as a result of a compelling demand for a better educational quality. From this perspective, this work is aimed at answering two questions: i) What has been the enrollment behavior of schools with low SIMCE scores over the period 1998-2008? And ii) Is there any mobility or departure of students from these institutions that could be associated to a search for schools perceived as better quality schools?

To that end, the study identifies and characterizes the group of low-performance urban elementary schools, measured by SIMCE. It analyzes the enrollment behavior and evolution, according to characteristics of the schools, the families and the students. We focus on the analysis of the magnitude and the characteristics of the outflow of students from these schools over time (mobility rates), and on estimating the possibility to have students go from these (low-performance) schools to schools with similar or better performance.

We chose to use SIMCE scores as a "quality" indicator (without correcting it by social-economic level–NSE-of the school or the students) because of two reasons. First, we are not interested in determining the extent of school contribution to learning, but instead we want to establish the families' answer to what they notice directly, the performance of their children. Second, and along the same line, because we understand that SIMCE is the only "quality" indicator available to parents and to the educational community in general to compare the quality of schools. The classification of low, medium and high quality schools responds to a criterion relating to the type of outcome yielded by these institutions, and not to the quality of the production function itself, which we cannot observe directly. We could have chosen to classify schools according to their SIMCE corrected by the NSE of the school or the families. But this classification would have

excluded low performance schools in general, for being the best among certain socio-economic group, which we didn't want to do.

2. Review of the Literature

Toward the end of the seventies, Latin American educational systems underwent significant regulatory and financing modifications, following a pervasive trend in connection with the role of the State, the community and the market. The effects of these significant changes started to be perceived and felt since the early `80s and deepened during the '90s, period where together with the incorporation of non-governmental financing sources, the competencies, responsibilities and resources involved in the delivery of educational services gradually shifted from central to local entities (regional, district and/or municipal) (Dale, 1999; Di Gropello, 1999; Winkler & Gershberg, 2000; UNESCO, 2001; OCDE, 2004). Decentralization became the center and the starting point of an educational policy aimed at increasing the system's efficiency, keeping the central authorities far from the responsibility of delivering educational services, promoting at the same time the competitiveness between the institutions and the agents charged with delivering the service, granting more autonomy to the educational centers. Chile was not alien to these sociopolitical processes and dynamics that brought about significant changes in the way in which public education and its educational system were organized. These transformations gave rise to a deregulated environment with the participation of private players in the delivery of public policies (Mizala & Romaguera, 1998; Cox, 2003; Carnoy, 2005; Corvalán, 2007).

The reduction of the State's responsibility for delivering educational services, added to its deregulation within a context of market dynamics account for a *quasi-market* system characterized by the competition between educational institutions to attract students (incentive to competition), free election of the school by the parents and information on the results or the quality (SIMCE) of each institution in the system (Carnoy, 1997; McEwan & Carnoy, 1999; Aedo & Sapelli, 2001; Sapelli & Torche, 2002; Gallego, 2002; Elacqua & Fabrega, 2004; Mizala, Romaguera & Ostoic, 2004; Hsieh & Urquiola, 2006; García & Paredes, 2010; Drago & Paredes, 2011). In these quasi-markets, the parents were theoretically free to choose the school for their kids (*school choice*). The institutions receive public financing depending on the number of regular students, and therefore they should attempt to increase students' enrollment through their own initiatives, the educational offer and mainly the quality of education (Maroy, 2008).

All in all, the responsibility for the quality of the service shifted to the families, who through their election would be responsible to reward or punish schools, staying in them or changing to others that could provide a better service. However, researchers agree that parents show disparity in their ability to select, tightly linked to their material and symbolic resources (Lauder & Hughes, 1999). Families with higher income and socio-cultural capital display greater probabilities of choosing schools based on educational criteria and on the development of a medium and long-term project, while lower-income, more vulnerable families are more prone to decide on the basis of practical reasons; namely closeness (Gwirtz, Ball & Bowe, 1995, Chumacero, Gómez & Paredes, 2011).

Maroy (2008) reviews quasi-market educational systems in different countries, showing that these measures have increased segregation and inequality among students. The analyses of the Belgium system show that segregation is greater in highly urbanized zones or contexts (large quantity and

diversity of schools), which allows stating that the diversity of the supply and the election by the parents stress segregation. Schools that have more resources and are more willing to attract better students shall sustain or improve learning and achievement and will therefore maintain their reputation and increase their demand by families of medium and high socio-economic status. As mentioned by Maroy and van Zanten (2007), while some schools will take care of students pertaining to elites, others will have no choice but to take care of a less prepared and less resourceful school population, with the apparent consequences on the increase in disparity of opportunities and social inequity. The same applies to the study conducted by Sapelli & Torche (2002) and Paredes & Pinto (2009) on the Chilean case. Its empirical results confirm a compelling effect of the level of income and education of parents in the election of school: parents with higher income and more education show greater probability of choosing a private school.

In our opinion, no country shows a clearer expression of quasi-educational market than Chile: families can freely choose schools (at least in theory); yearly data is available on academic results of each school (quality measured by the SIMCE); and the competition between schools. Such system operates under the premise that families may actually choose the school for their children, primarily based on the quality they provide. This capacity and possibility will drive the system, promoting and pressuring for the subsistence of increasingly good quality schools, punishing schools that do not meet this quality requirement, which taken to an extreme, should close down due to lack of students. However, a myriad of studies conducted in Chile cast evidence on the fact that the election by the families is limited. They have investigated the factors that lead families to choose educational institutions for their children, after searching for evidence on quality-based migration, which is the foundation of the voucher system. The results are neither conclusive nor shared. In effect, over and above the search for quality, the location of the school emerges as the most relevant variable in a large number of studies (McEwan & Carnoy, 2000; Elacqua & Fabrega, 2004*;* Schneider, Elacqua & Buckley, 2006; Elacqua, 2009; Gallego & Hernando, 2009). In concrete terms, parents would prioritize the distance between the school and the home upon choosing the school, being very few those who consider quality and distance concurrently. Despite the above, recent studies suggest that in addition to distance, parents also pay great attention to the quality of the school ((Gallego & Hernando, 2009; Chumacero, Gómez & Paredes, 2011), even in circumstances where the information is unclear (Gómez, Chumacero & Paredes, 2012 in this volume).

3. Data and Analysis Model

Using SIMCE[3] as the quality indicator, we will deepen into the reality of schools whose elementary students do not achieve good results. First, we will evaluate whether the group of bad schools changes over time. Second, we will analyze student's mobility from these schools, and how this mobility rates differ by school type and to which schools these students go. Finally, it is also worth evaluating if there is a pattern regarding the profile of students who remain or change school.

[3] SIMCE is the quality indicator used by the National System to Assess the Quality of Education, entity that systematically measures and analyses students' performance in Language and Mathematics and other key areas of Chile's educational curriculum.

As we explained in the introduction, we used SIMCE Language and Mathematics data to classify schools according to their historic "quality", without adjusting it by the socio-economic background of families. We took this option because we believe that regardless of the factors underlying this poor performance (cultural and human capital of families, lack of resources, poor management,) these schools convene children with the worst educational outcomes in Chile. Also because SIMCE score probably is the only "quality" indicator available to the community (on a yearly basis) to compare schools. We will designate schools with low historic SIMCE, "low quality" schools, understanding that this denomination does not necessarily relate to a poor production function, but it means that overall (considering the function of production and the cultural capital or socio-economic level of the families) these schools show poor academic results.

In order to identify low quality schools over a decade (1998-2008,) we combined data taken from the directory of Chile's educational institutions, SIMCE databases for 4th and 8th grade (including parents' questionnaires) and the record of Chilean students (RECHE). These analyses call for a classification of the schools according to their historic SIMCE score or the trend shown by the performance of their students during the period under analysis; their size and the evolution of enrollment over such period. In order to determine the historic SIMCE score, we estimated the average scores in Language and Mathematic SIMCE tests for each school in the sample, for fourth and eighth graders during the period 1998 – 2008. The minimum score from such average enables us to rank each school according to the quality shown over time. We excluded rural schools (with low enrollment rates and which SIMCE score is erratic) and urban schools with less than three measurements for the period under analysis.

The classification of schools according to their size is based on the simple average of total elementary school enrollment for the period 1998 – 2008. This enables us to divide them between very small (fewer than 50 students), small (between 50 and 200), medium-size (between 200 and 600) or large schools (more than 600 students). Lastly, schools were also classified according to their enrollment behavior between 1998 and 2008. This indicator was estimated based on average yearly growth rates of enrollment. In agreement with the above, we divided schools into five main groups: 1) those with low enrollment growth (between 3% and 15% per year); 2) those with high growth (greater than 15% per year); 3) those with a stable enrollment behavior (variation between - 3% and +3%); 4) those with a significant enrollment reduction (greater than 15% per year) and 5) those with a moderate enrollment reduction (between 3% and 15% per year) .

We only included in the study schools that provide elementary education (although they may also provide secondary education). This rule responds to the assumption that the change behavior, if any, is not customarily influenced by the student, but instead that the decision is solely made by the family. We have 9,355 elementary schools in the system. We excluded schools that did not have three or more SIMCE measurements, which was considered a basic requirement to discuss the evolution of such quality indicator in the period under analysis[4]. Of this new universe, we only considered schools located in urban areas, since most rural schools are located in low competitiveness environments, which is also an indispensable requirement to analyze and interpret the possibility of changing or staying. Therefore, the study encompassed a total of ***4,727 urban schools.***

[4] For reasons pertaining to SIMCE assessment and the pace of creation and elimination of schools, some of them do not have SIMCE data or have less than three measurements over the period under analysis.

Different analysis strategies are used based on the questions asked. So, simple descriptive statistical analyses, regressions and correlations are used to identify and to characterize low quality schools, their performance trends and the evolution of enrollment, as well as the magnitude of the mobility rates and the destination of students.

In order to characterize student permanence of mobility out low quality schools, we used discrete decision models (probabilistic models). We estimated the probability that a student who attends a low (low/very low) quality school changes to other types of school relating to the student's gender and individual SIMCE performance, schooling of the mother, type of funding, size and socio-economic status of the school.

The election models take into consideration the decision made by an economic agent when presented with several alternatives. A random utility model is introduced, where the consumer is faced with J alternatives. Let's assume that the decision j provides the individual i with the following benefit

$$U_{ij} = x_i \beta_j + \varepsilon_{ij} \qquad (1)$$

Where x_i is a row vector with K variables which characterize individual i.

If the individual chooses alternative j, it is assumed that the utility of this alternative is the highest for this individual. Being Y the random variable that indicates the alternative chosen, MacFadden (1973) shows that if the errors of the equations defined by (1) are independent and identically distributed and has a type II extreme value (or Gumbel) distribution (i.e. $F(\varepsilon_{ij}) = \exp(-e^{\varepsilon ij})$), then

$$\Pr ob(Y_i = j) = \frac{e^{X_j \beta_j}}{\sum_{j=1}^{J} e^{X_i \beta_j}} \text{ , for j=0, 1,2,...,J} \qquad (3)$$

They define a multinomial logit model. The model so written is undetermined, therefore we must standardize it by selecting a base category, where

$$\Pr ob(Y_i = 0) = \frac{1}{\sum_{j=1}^{J} e^{X_i \beta_j}} \qquad (4)$$

In our case, the base category will be the "no change", i.e. the student who does not move in a given year.

The parameters of the model are estimated by maximizing the log of the likelihood function:

$$\ln L = \sum_{i=1}^{N} \sum_{j=0}^{J} d_{ij} \ln \Pr ob(Y_i = j) \qquad (5)$$

We include the following variables:

- Gender of the Student: dychotomic variable whose value is 1 if the individual is a woman and zero in any other case.

- Socio-Economic Status of the School, NSE (RBD): group of dychotomic variables. Each of them assumes value 1 if the school pertains to one of the three socio-economic classes defined (low, medium-low, medium and high socio-economic level) and zero in any other case.

- School Enrollment Size: group of dychotomic variables. Each of them assumes value 1 if the school fits within one of the three sizes defined and zero in any other case: small (51-200 estudiantes), medium-size (201-600) and large school (more than 601)[5].

- School Funding: group of dychotomic variables. Each of them assumes value 1 if the school fits within one of the three modalities (public or municipal schools, subsidized private, paid private school) and zero in any other case.

- Average Student's Score in SIMCE: group of dychotomic variables. The categories are assimilated to the ranges whereby the school quality is rated: very high (300 points or more), high (261-300 points), medium (226-260), low (201-225) and very low (200 points or less).

- Educational Level of the Student's Mother: group of dychotomic variables. Each of them assumes a value of 1 if the student's mother completed one of the four levels of education defined (incomplete elementary; incomplete secondary school; incomplete university education; complete university education).

The base category defined is composed of boys whose mothers have low schooling and attend poor, very small, municipal schools with low achievement levels and poorly educated mother. All marginal effects shall be therefore relative to this base category.

It is worth mentioning that among the explicative variables there are potentially endogenous variables, which would prevent us from identifying marginal effects as the causal effects. The use of this discrete model is intended to characterize mobility; in no case we will attempt to give a causal interpretation to these coefficients.

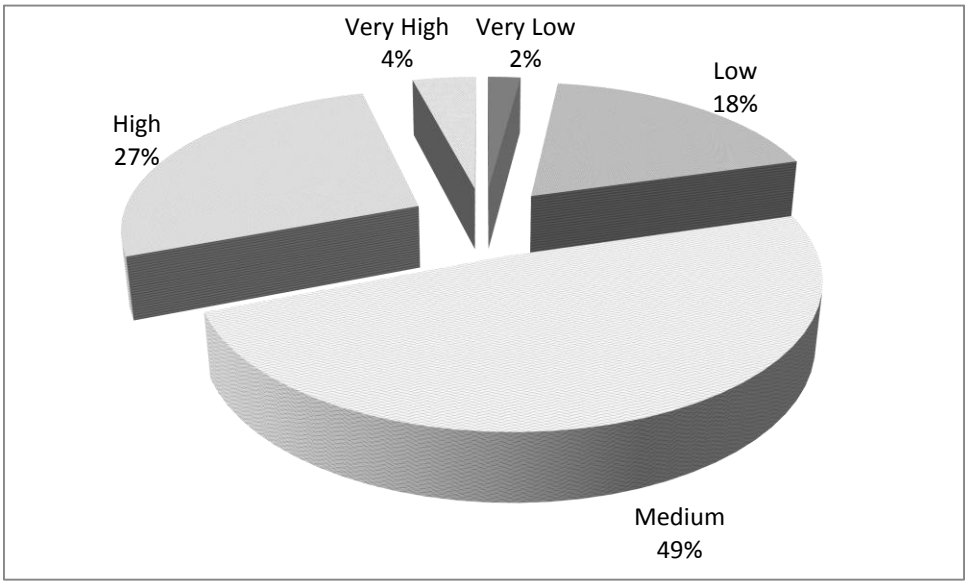
[5] Only for the estimation of the multinomial model, we restrict the sample to schools with more than 50 students, dropping 22 schools. The results are not sensitive to this exclusion.

4. Results

4.1. Identification and characterization of schools with low-quality historical results

Close to fifty percent (49%) of urban schools may be classified as medium quality schools according to their average SIMCE indicators over the last decade. One third (30.5%) rank among high and very high quality schools, while 20.5% correspond to low and very low quality schools, according to the SIMCE for elementary school students over the last 10 years (figure 1). This accounts for a total **of 971 urban schools across the country[6].**

Figure 1: Distribution of Urban Schools by Quality Level (1988-2008)



Source: Own calculations, using SIMCE data for the period 1998-2008.

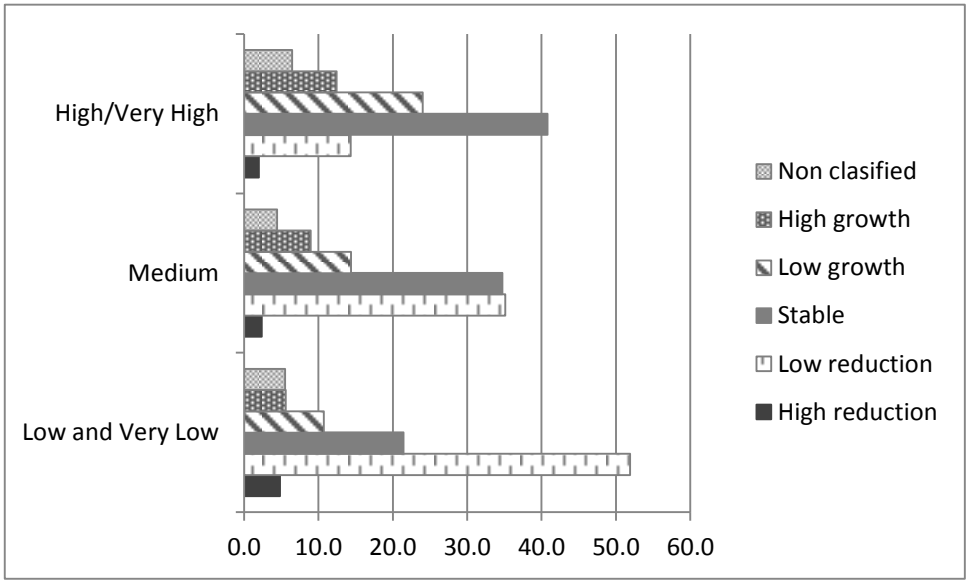
Almost 60% of schools with low SIMCE results are public or municipal schools (59%), 39% are subsidized private schools and the other 2% are private paid schools, while more than 70% fit within the low and medium-low socioeconomic levels. These first analyses already show us interesting things, albeit contradictory: although among municipal institutions the fraction of chronic low quality schools is greater than average (31.3% against 20.3% on aggregate), close to one third (29%) of low-quality subsidized private schools receive a shared funding; they charge the students' families for the service and they also receive state funding. In addition, a greater number of these low quality institutions are among schools with less than 200 students.

[6] For reference purposes, it is said that the analyses made over the total of schools within the system that provide elementary schooling in rural and urban environments and with sufficient SIMCE measurements (7,456), showed that close to one third (29%) show low or very low SIMCE results over the last 10 years (N= 2.167). In the other end, we have 21% of schools with High or Very High SIMCE results.

4.2. Evolution of enrollment in schools with low academic performance

The data show that almost 60% (59.4%) of schools with low quality historical results have experienced a reduction in the enrollment rates over the period 1998 – 2008, either significantly (5%) or moderately (54.4%). 17% of them experienced an increase in their enrollment rates, while 22.5% remained stable over the same period. When comparing this behavior among schools with an average SIMCE or high or very high SIMCE, we clearly see that the drop in enrollment is greater among urban schools with low quality historical results than those showing medium or high quality (Figure 2). It is also interesting to realize that there is a significant group of low quality schools that increased their enrollment (166 schools), and a greater number of schools that have remained with a stable enrollment level over time (218). Thus, we have 40% of schools with low quality historical results whose families and students do not react according to what is expected from a (quasi) market system.

Figure 2: Changes in school size by quality



Source: Own data based on the directory of schools and SIMCE indicators.

4.3 Magnitude, origin and destination of change in schools with low-quality historical performance

For purposes of the analyses that address the change or the permanence in schools, we did not consider change when the student departs to another region or when the student changes school when he/she is promoted from seventh to eighth grade because the school does not offer secondary education. The available data enable us to conduct these analyses for the years 2003 - 2006.

4.3.1 Mobility rates

Close to **9%** (8.8%) of students between first and eighth grade in the period 2003- 2006, changed schools, as an involuntary decision[7] (table 1). It is clear that the change rates ***are higher among schools with low quality historical results***. In effect, they account for ***a rate of 11%*** (10.6%) altogether for students between first and eighth grades during 2003 and 2006.

TABLE 1: SCHOOL MOBILITY RATES AMONG URBAN SCHOOLS (YEARS 2003-2006), GRADES 1-8

		Movement types				
Elementary School (grades 1 to 8)	**Gross Mobility rate**	**Movements within the same district**	**Movements in 7th or 8th grade**	**Movements to another district**	**Movements to another region**	**Net mobility rate[1)]**
All urban schools	**12,9%**	**45,9%**	**8,6%**	**22,3%**	**23,3%**	**8,8%**
Low and very low quality urban schools	**15,7%**	**44,7%**	**10,7%**	**22,6%**	**22,0%**	**10,6%**

Source: Own calculations based on RECH data and SIMCE records.
(1): This mobility rate does not consider movements outside the region or movements in 7th or 8th grade, when the school does not offer secondary education.

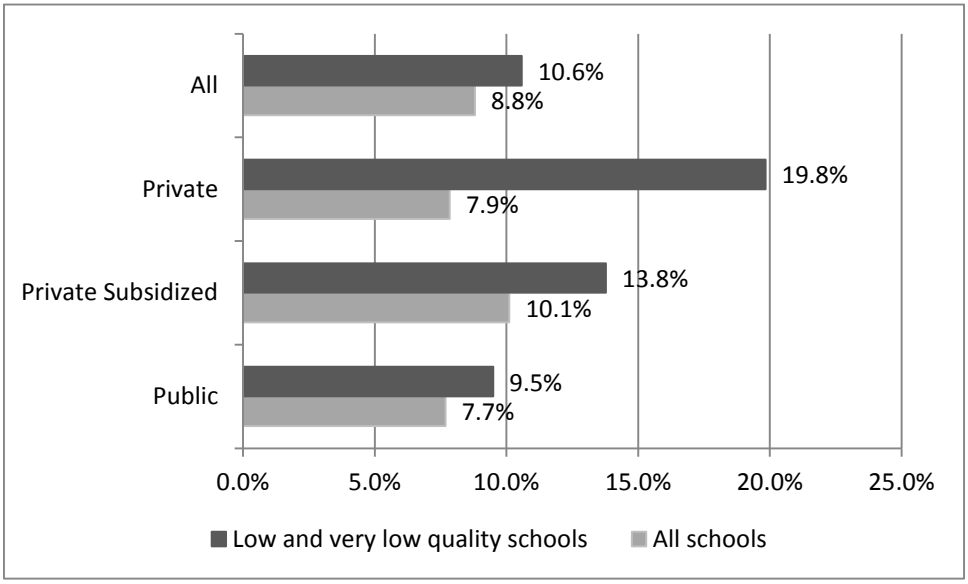
4.3.2 Characteristics and origin of the change in Schools with Low Quality Historical Results

Almost 90% of students who attend schools of low quality historical performance remain in them. This number increases if we consider 1.7% of those who change between 6th and 8th grade because the school does not offer education for the upcoming grade. Of those who change schools, 7% go to another institution within the same district, while close to 4% go to a school located in another district. The numbers vary according to the type of funding received by the school. Therefore in low-quality municipal schools, the degree of permanence is greater (90,5%), followed by Subsidized Private schools (86%) and by Private Paid Schools (80%).

[7] As it was explained above, this mobility rate is depurated from changes that involve changes in the region of residence or because the lack of secondary education in the school of origin.

The comparison between the change rates enables us to state that for the whole set of urban schools, they range roughly between 8% and 10%, being higher among subsidized private schools. For low quality schools, the change rate varies between 10% and 20%, being greater among private paid schools (figure 3).

Figure 3. Mobility Rates. Total Urban Schools and Schools of Low Quality Historical Performance, by Type of Funding



Source: Own calculations based on RECH data and SIMCE records

4.3.3 Destination of the Change

Approximately 50% of students (48%) who change from Very Low SIMCE quality schools (below 200 points), move to another Low Quality school (200-225) and almost 10% move to another Very Low Quality school. Only 37% move to another Medium quality school and barely 5% of them move to High Quality schools. 55% of the students who change from Low Quality schools move to Medium Quality schools and 8.8% move to High Quality schools. Only one third of them migrate to Low-Quality (32.9%) or Very Low-Quality schools (3.3%). (Table 2)

TABLE 2. SCHOOL MOBILITY BY SCHOOL QUALITY. TRANSITION MATRIX.

Quality	Mobility Rate	Destination of the change				
		Very Low	Low	Medium	High	Very High
Very Low	**15.3%**	**9.8%**	**47.6%**	**37.4%**	**5.1%**	**0.1%**
Low	**10.4%**	**3.3%**	**32.9%**	**54.6%**	**8.8%**	**0.3%**
Medium	8.7%	1.0%	18.1%	57.2%	22.5%	1.2%
High	8.4%	0.4%	6.1%	37.5%	48.5%	7.5%
Very High	4.6%	0.1%	2.2%	14.3%	56.7%	26.7%
All schools	9.6%	1.4%	17.7%	50.3%	27.3%	3.3%

Source: Own calculations based on RECH data and SIMCE records.

Note: The total mobility rate on this table (9.6%) is different from the one presented on Table 1 (8.8%), as here we are only considering schools for which SIMCE data is available or schools for which, given our methodology we can classify them by its quality level.

4.4 Probability of change from schools with low-quality historical results.

By means of a discrete election model (multinomial logit), we estimated the probability that a child who attends a low (low/very low) quality school changes to other schools of the same or better quality. The possible set of election revolves around the level of quality with which the destination schools are rated. The family has four alternatives: i) Maintain the child in the same school; ii) move the child to another school of the same quality; iii) move him to a medium quality school and, iv) move him to a high quality school.

As explanatory variables we include some institutional variables as well as an additional set of individual variables. Due to issues relating to the availability of the information, the analysis is limited to fourth graders, for whom we have information for the years 2005 and 2006. In addition, the analysis is also limited to urban schools with more than 50 students in elementary education.

As we explained before, we purged the "change" variable from all changes considered involuntary, such as for example, that the student goes to live in another region. So, we only considered a ***change*** if the student moves to another school within the same region. The categorical variables of the discrete election model are as follows: Gender and *Student's Average SIMCE score; Socio-economic Level, Size and Funding of the School; Student's Mother Educational Level*. We will define our base category to be boys who attend poor and small municipal schools, who had low achievement levels and poorly educated mothers.

Table 3 shows the marginal effects of the different variables. In all cases the exercise was done on the basis of the whole set of Low Quality schools, i.e., those that historically score below 225 in average for such indicator (corresponding to the group of Low and Very Low Quality Schools according to the typology used in this study)[8].

TABLE 3. MARGINAL EFFECTS.

	No change	*Low and very low quality schools*	*Medium quality schools*	*High and very high quality schools*
Gender				
Girls	-0,0009	-0,0039 **	0,0045 *	0,0002
Boys	...	...	...	...
Socioeconomic level of school				
Low	...	...	...	...
Medium-low	-0,0223 ***	0,0051	0,0190 ***	-0,0018
Medium	-0,0402 ***	-0,0044	0,0397 ***	0,0049 *
Medium-High	-0,0120	-0,0312 ***	0,0167	0,0265 **
School Size				
Small	...	...	...	...
Medium	0,0597 ***	-0,0080 **	-0,0459 ***	-0,0058 ***
Large	0,0822 ***	-0,0168 ***	-0,0572 ***	-0,0082 ***
School Type				
Public	...	...	...	...
Private Subsidized	-0,0364 ***	0,0239 ***	0,0103 ***	0,0022 *
Private Paid	-0,0092	0,0251	-0,0153	-0,0006
Individual Achievement in SIMCE				
Very Low	...	...	...	...
Low	-0,0005	-0,0079 ***	0,0047	0,0036 ***
Medium	-0,0049	-0,0180 ***	0,0153 ***	0,0076 ***
High	-0,0114 **	-0,0236 ***	0,0210 ***	0,0141 ***
Very High	-0,0071	-0,0356 ***	0,0190 ***	0,0237 ***
Mother´s schooling				
Elementary Scholl or less	...	...	...	...
High school or incomplete techical education	-0,0430 ***	-0,0028	0,0326 ***	0,0131 ***
Complete techical education or some c	-0,0988 ***	-0,0221 **	0,0815 ***	0,0394 ***
No reporta	-0,0480 ***	0,0206 ***	0,0188 ***	0,0086 ***

***** p<0.01, ** p<0.05, * p<0.1**

[8] We used records of fourth graders for the years 2005 and 2006.

Regardless of the groups under consideration, the model predicts an overall no-change rate of approximately 86%, 5% of the students change to schools of similar quality, while 8% change to schools of medium quality and only 1% change to better schools. Table 3 shows no systematic differences in mobility rates by gender, but does show differences based on the socioeconomic status of the school and the family, the funding modality of the school and the level of achievement of the student.

In general terms, we found out that the model predicts the higher permanence rates in the low quality schools for the students with the lower the socioeconomic level (both in terms of the school and the home, using as reference the mother's educational level) and for the students who obtain the lower SIMCE score or have low academic achievement. In this sense, without making any causal interpretation, the results show that children who come from homes where the parents have little human capital and lower economic resources stay or move mostly to low quality schools.

The model predicts higher change rates among children with highly educated mothers in schools with medium and medium high socioeconomic levels, and among students with higher SIMCE scores. Regardless of these other factors, the smaller the school the greater the change rate; schools with less than 200 students in elementary education (equivalent to 25 students per grade) show change rates of almost 15%, against large schools, where the change rate is half.

In average, only 1.3% (the standard error is 0.07%) of students change from a low quality to a high quality school; students who attend schools of a high socioeconomic level with highly educated mothers have a probability to change to a high quality school four times bigger (4%). Based on our analysis we are unable to explain why this happens, but it may clearly relate to a greater capacity of gathering information and/or to greater economic resources to face the change.

5. Conclusions

In this paper we have identified close to 1,000 urban schools whose educational quality, measured by SIMCE scores remains low for at least one decade (1998-2008). They account for 21% of all urban schools that offer elementary education. Therefore, we conclude that close to 250,000[9] elementary school students are not receiving an education that will allow them to strengthen and to develop basic cognitive skills and competencies (Language and Mathematics).

These schools of low quality historic performance may be characterized as follows:

a) They are mostly municipal schools (60%), followed by schools that receive government funding (39%).

b) More than 70% pertain to low and medium-low socioeconomic levels.

c) Approximately half of them (52%) are medium size and 21% are large schools.

[9] According to official enrollment records of the MINEDUC 2009, these 971 schools account for a total of 246,618 children from 1st to 8th grade.

d) They are located in municipalities where there is a strong competition between schools. Close to half are located in the Metropolitan Region and in large and highly populated districts.

The system is characterized by the persistent coexistence of schools of different quality, for different types of audiences. Close to one third (29%) of low quality subsidized schools receive shared funding; i.e. the schools charge a fee to the students' families and receive government support, which seems a major contradiction; it also seems contradictory that there are municipal schools on the same regime. As usual, averages hide the immense heterogeneity that exists in the system. Understanding this heterogeneity is not only essential to understand the phenomenon under discussion, but that also to cast lights on the most appropriate and relevant strategies to reverse this effect. It is clearly a challenge to understand how these school that rank among the lowest tiers of educational quality, have survived in the system.

When we analyze SIMCE results year-on-year, and not only as the average score over a decade, we can identify 4 sub-types of low-quality schools:

1. Upward: Those showing SIMCE scores that improve year-on-year, although they are deficient and are below the expectations or the region's average.

2. Stable: Schools that do not show changes or variations across different SIMCE measurements during the period under study.

3. Fluctuating: Schools that go up and down without following a defined pattern across various SIMCE measurements and;

4. Downward: Schools whose SIMCE scores gradually decrease measurement after measurement.

The signals provided to families differ very much in each case and, therefore, the potential reaction they may have will also vary when having to enroll a new child or change him (her) to another school. This will occur provided the parents use the SIMCE as the quality indicator for such purpose. The data show that 67% of urban schools of low quality historical performance show a fluctuating or downward trend in SIMCE results across various measurements. Only 22% of the students show an upward trend in this indicator and 4% remains stable over time. Municipal schools are more compromised than private schools, since in most cases (70%) they show a downward (negative) trend or obtain the same (low) scores year on year.

Close to 60% of Low Quality schools have seen a moderate or significant reduction in their enrollment over the period 1998 – 2008. 17% saw a significant increase in their enrollment rate, while 22.5% kept it unchanged over the same period. Enrollment reduction is greater among urban low-quality schools than among those showing a medium or high quality. However, the destination of the change does now allow us to state that this migration is toward a better quality school. Not at least in connection with the SIMCE indicator. Along the same lines, it is quite interesting to note that there is a significant group of low quality schools that increase their enrollment rate or that have maintained it stable over time.

Municipal low quality schools are among those that mostly reduce their enrollment over time, while in the other end the subsidized private schools are the institutions that experience the

greatest increase in their enrollment rates over the same period. 51% of low quality schools that show a significant loss or reduction in enrollment are municipal and 43% are subsidized private schools. The comparative analyses would indicate that the extent of the reduction is not the same among schools: it will depend upon their quality and type of funding.

All in all, almost 88% of students who attend schools with low quality historical performance measured through SIMCE remain in them. Of those who change, 7% go to another school within the same district, while close to 4% go to a school located in another district. The highest change rates occur in first grade and they are significantly higher in low quality schools (18.2% against 13.6% for the whole set of schools).

Of all the students pertaining to *very low quality* schools*,* close to 60% move to same or low-quality schools, while 37% move to schools of medium quality and as little as 5% migrate to high quality schools. A similar pattern, although not so dramatic is observed for students who attend *low quality* schools (little over one third of students migrate to poor/very poor quality schools; more than half (55%) migrate to medium quality schools and 8.8% move to High Quality schools). These results indicate that movements within the school system are not necessarily generating access to a better quality education: either families are making bad decisions because they do not have the skills or the resources to apply to better schools, their conceptualization of quality is different or, simply, serious restrictions exist that prevent these families from accessing to better quality schools (co-funding, selection, distance, for example).

The probability that the student may change to a better quality school is significantly greater among students of high socioeconomic status and it is also positively related to the student's own SIMCE score. These findings could be showing that access to "resources" might be a decisive factor affecting families' decisions.

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Anexo I: Fuentes de información

a) Directorio de Establecimientos educacionales chilenos. En ella se registra año a año, el total de establecimientos del sistema, según características e indicadores principales.

b) Bases SIMCE 4º Básico: años 1999, 2002, 2005, 2006, 2007 y 2008. Contienen los promedios obtenidos por cada establecimiento en las pruebas SIMCE (Lenguaje, Matemática, Ciencias Naturales y Sociales), que rinden los estudiantes de 4º año de enseñanza básica, a lo largo del tiempo (medición anual desde el año 2006)

c) Bases SIMCE 8° Básico: años 2000, 2004 y 2007. Contienen los promedios obtenidos por cada establecimiento en las pruebas SIMCE (Lenguaje, Matemática, Ciencias Naturales y Sociales), que rinden los estudiantes de 8º año de enseñanza básica, a lo largo del tiempo (medición bianual alternada con la medición de los estudiantes de II Medio)

d) Bases datos de Factores Asociados SIMCE. Se trata de la base con los cuestionarios que responden una muestra de Apoderados de los estudiantes que rinden el SIMCE en los diferentes años y,

e) Registro Estudiantes de Chile: RECH, 2003 al 2006. Contiene la información del total de estudiantes que se matricula anualmente en alguna escuela o liceo de Chile. Esto permite seguir la trayectoria (egreso, cambio o permanencia) de los estudiantes en el sistema educativo.