When Expectations are not Fulfilled: School Choice in Chile

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Abstract

In this paper, we use survey and school level data in the Metropolitan Region (R.M.) of Chile to examine how changes in some of the key aspects of the national voucher program affected parent behavior and private voucher school decisions. Using face-to-face interviews conducted with random samples of first grade parents in the R.M. in 2003 (prior to the policy shifts) and 2009 (after changes were implemented), we asked parents to tell us about the number of sources and types of information they use to choose schools, and the distances they travel to send their children to school. We also analyze the satisfaction with schools in general and the school of choice. We find that, while changes in some of the key aspects of the voucher program had an important effect on parent's school search behavior, overall satisfaction is much lower. Parents are gathering more information, traveling greater distances to find the school that matches their preferences. Despite that theoretically their levels of satisfaction should increased because of an enviroment with more school choice, they give worse evaluations to their schools and are less satisfied, specially in dimensions related to management of schools.

1 Introduction

Widespread concerns over the quality of schools in Chile has pushed the issue of education reform to the forefront of the national debate. In May of 2006, more than 600,000 students walked out of class and occupied hundreds of schools all over the country to protest inequities in Chile's education system (Clarín 2006, Página/12 2006). The students blamed the unfettered national voucher program and increased privatization for the education disparities (OEI 2007). School choice and vouchers are among the most hotly debated instruments of school reform in many countries. Voucher programs come in many forms. They often differ in their design and these differences can affect incentives and responses. Therefore, understanding the effects of alternative designs is key to crafting an effective voucher program. This paper examines how changes in some key aspects of Chile's voucher program between 2003 and 2009 may have affected parent behavior and private voucher school decisions.

Chile's long-standing universal system of educational vouchers has provided parents with the opportunity to choose among a variety of public and private schools for over 30 years. In 2008, 50.2 percent of elementary students that live in urban areas attended private voucher schools, 42.3 percent public schools and 7.5 percent private non-voucher schools. Over the period 1990 and 2008, the total number of urban private voucher schools increased by 58.8 percent, and total enrollment in urban private voucher schools increased by 84.4 percent.[1]

The advent of school choice in Chile and other countries has fueled a persistent scholarly and policy debate on the advantages and potential pitfalls of educational vouchers (Henig 1994, Moe 2001). Discussions of the effects of school choice and vouchers have often focused on the issues of school quality and efficiency, school diversity, and social equity (Belfield & Levin 2005, Godwin & Kemerer 2002).

Fundamental to the push for educational vouchers is the idea that choice unleashes competitive pressure on schools that makes them deliver higher quality schooling at a lower cost (Barrow & Rouse 2009). Friedman (1962) argues that the public school system is a monopoly in which schools are guaranteed students no matter how well they perform. The result is that they have few incentives to produce high quality education and to allocate their funds efficiently. He argues that allowing private schools to compete for tax dollars would bring new schools into the educational marketplace that offered higher quality education for the same price as public schools.

Chubb, J. and Moe, T. (1990) developed a theory of educational governance to help explain how politics affects the efficiency of schools. They argue that given the way incentives are structured in politics, the top-down forms of control tend to bury schools in bureaucracy and erode efficiency. Chubb, J. and Moe, T. (1990) maintain that the problem of overregulation has been especially burdensome in education because the regulators continually change the rules and this leads to large amounts of cumbersome paperwork, limits autonomy of principals and teachers, and stifles creativity. They argue that the only way to improve efficiency is to shift from top-down control of schools to a market based education system of

[1]Most rural students attend public schools and have few school choice opportunities. In 2008, 21.7 percent of elementary rural students attended private voucher schools and 77.2 percent public schools. However, there has been a moderate growth in the number of rural private voucher schools and students. Over the period 1990 and 2008, the total number of rural private voucher schools increased by 20.8 percent, and total enrollment in rural private voucher schools increased by 13.6 percent.

vouchers where schools compete for students.

For many voucher advocates, to give families the freedom to pursue their own educational preferences that reflect their values, and educational and religious philosophies is also an important issue for educational change. Coleman (1990) asserts that by allowing parents to choose schools on the basis of communities to which they belong (e.g. religious communities, progressive communities) can increase diversity in education and strengthen the notion of community and parental trust in schools increasing their satisfaction.[2] Friedman's (1962) economic logic is also grounded in a respect for diversity and a tolerance of individual values. He argues that the point is not just to give parents higher quality schools, but also the kind of education they want for their children. Friedman (1962) theorizes that the availability of publicly funded vouchers would "bring a healthy increase in the variety of educational institutions available to parents".

This variety of school would facilitate parents to choose according to their preferences enhancing their school satisfaction. Empirical research in choice systems is nearly unanimous in linking various forms of choice to increased parent satisfaction (e.g. see Peterson, 1998 and Buckley & Schneider, 2006). Some scholars believe that not only a better fit between preferences and schools supply are responsible for higher levels of parental satisfaction from choice. It also could be related to the energy and time that parents put into choice. Some parents may seek to justify their choice and their investment of resources by selectively gathering and interpreting information about performance and by indicating increased satisfaction with their children's schools-viewing the schools through "rose colored glasses" (Erickson, Donald 1982).

While efficiency, school diversity, and parental satisfaction are important issues in education policy reform discussions, the concern that school systems be fair and equitable is crucial to most governments. Advocates have often argued that the introduction of educational vouchers can make improved educational opportunity and private schooling options available to the most disadvantaged children (Sugarman 1999). Since the option of school choice through residential mobility or through enrollment in private schools has long been available to wealthier families, voucher proponents maintain that expanding the right of disadvantaged parents to leave their low performing neighborhood schools for higher performing ones may improve social equity as income becomes less important in determining who attends higher quality schools (Neal 2002, Viteritti 2003).

Voucher skeptics have identified both demand side and supply side critiques of school choice and competition. On the demand side, they are concerned about whether families, especially low-income parents, have the time, ability and resources to choose the best schools for their children (Smith & Meier 1995, Henig 1994, Carnegie Foundation 1992, Schneider et al. 2000). Schneider et al. (1997) argue that choice may exacerbate the level of inequality in education as more highly educated parents with higher cognitive skills, higher quality networks, and greater interest in education become better "shoppers" for information and use that information to choose the best schools for their children.

On the supply side, critics have raised concerns about the effect of competition and parental choice on the schools themselves. For instance, some skeptics argue that faced

[2]Empirical work by Bryk & Schneider (2002) demonstrates that building trust in school communities is essential for improving academic performance.

with competitive pressure in an industry that provides complex services to poorly informed parents, schools will have incentives to economize on quality (Levin 1998). Opponents are concerned that parents will end up paying higher fees for similar or lower quality options (Molnar 2001).

Others critics have argued that school location decisions in educational markets may exacerbate inequities. For example, opponents maintain that for-profit schools do not have incentives to establish schools in poor neighborhoods, where business is more risky and students are more expensive to educate. Based on their empirical findings on private school location patterns in California, Downes & Greenstein (1996) predict that if a universal voucher system were implemented, private schools would be more likely to locate in communities with more highly educated parents than in low-income communities.

Scholars have pointed out that the design of a voucher program can affect parent and school responses to choice (Levin 1998). Until recently, Chile's unfettered voucher program lacked several key components of an effective design. It had an unrestricted flat per pupil voucher that could be topped up by parents, thus providing few incentives for schools to locate in poor neighborhoods and enroll low-income students. The government provided parents with little information on school quality and schools were not held accountable for test scores and other outcomes. Moreover, private voucher schools were permitted to select students based on independent criteria (interviews, tests, etc.), which marginalized many poor families from high quality private voucher schools.

Many aspects of Chile's voucher system have changed over the last 8 years. Chile instituted a weighted voucher and national school accountability program, provided parents with more information on school quality, and banned school selection in primary grades. In this paper, we use survey and school level data in the the Metropolitan Region (R.M.) of Santiago, Chile to examine how these changes may have affected parent behavior and school responses. Using face-to-face interviews conducted with random samples of first grade parents the R.M. in 2003 (prior to the policy shifts) and 2009 (after the changes were implemented), we asked parents to tell us about the number and types of information they use to choose schools, and the distances they travel to send their children to school. We also examined changes in levels of parents satisfaction in several dimensions about the school of their choice.

We find that, while changes in some of the key aspects of Chile's voucher program had an important effect in parent's school choice behavior, and private school response, parents satisfaction has declined. Parents are gathering more information, and traveling greater distances to choose among a greater variety of private schools. However, it seems that the more availability of information and higher expectations from parents has led them to be more demanding and less satisfied consumers.

2 Chile's voucher program and shifts

Chile's national voucher program was designed and implemented by the military government in 1981. First, the Ministry of Education decentralized education service delivery to regional and provincial offices and the administration of public schools to municipal governments, whose maximum authority is an elected mayor. Second, it made all students in grades

kindergarten through twelve (K-12) eligible for a flat per pupil voucher[3] to attend public or private schools that did not charge tuition. The essential features of this system remained in place for over a quarter-century. The center-left coalition in power between 1990 and 2010 chose to focus on improving the quality of poor schools through direct resource investments, while maintaining the organizational and funding components introduced in the eighties (Cox 2003). The only significant modification of the voucher program between 1990 and 2002 was in 1994, when the Ministry instituted a financing scheme that allowed all private voucher schools to charge limited tuition (Montt et al. 2006).

In 2002, while parents in theory had unfettered choice among public and private schooling alternatives, there were a number of factors that continued to restrict their options. First, Chile had an unrestricted flat per pupil voucher that could be topped up by parents, thus providing few incentives for schools to locate in poor neighborhoods and enroll disadvantaged children. Second, private voucher schools were permitted to shape their pool of students based on independent criteria (interviews, tests, etc.), which also likely induced self-selection of parents out of many high achieving private schools. Finally, the government also provided parents with little information on school quality and schools were not held accountable for test scores and other outcomes.

Following a vigorous national policy debate on education in 2006, the government introduced a number of features in the national voucher program that strengthened parental choice and provided schools with incentives to locate in poor neighborhoods and serve disadvantaged pupils.

2.1 Finance

Between 1981 and 2007 municipalities and private school owners received a flat per-pupil voucher and, beginning in 1994, parents were allowed to add on to vouchers with their private resources. In 2007, the Chilean legislature enacted the adjusted voucher law (*Ley de Subvención Preferencial or SEP*). The SEP law recognizes that it is more costly to educate disadvantaged students by introducing an extra per-pupil subsidy (50 percent over the base voucher) for students classified as priority in the Ministry of Education's socioeconomic status classification system and for schools with a high concentration of priority students.[4] The SEP law is designed to increase private voucher schools' incentives to enroll disadvantaged students and locate in poor neighborhoods underserved by local public schools. The objective of the SEP subsidy is also to devote more resources to children from disadvantaged home environments and to narrow the achievement gaps in Chile.

[3]Chile's voucher formula included adjustments for rural schools and high schools, but did not take into account student socioeconomic characteristics or the existence of a high concentration of low-income students in public and private voucher schools.

[4]This system determines whether a student is "priority" based on individual and household surveys collected by the Chilean government. See Elacqua et al. (2009) for details on the decision tree the Ministry of Education uses to classify "priority" students.

2.2 Regulation

The government also made several changes to the rules and regulations under which the voucher system operates. The SEP Act forbids participating schools from using socioeconomic or skills criteria to select and expel students. In addition, participating schools cannot charge tuition to priority students. During the school year owners and/or principals can also no longer suspend or expel students because they cannot pay tuition (in schools with shared financing). Prior to this Act, schools were allowed to select students and could expel students that fell behind on tuition payments.

The government also established low-income student quotas to foster school integration and expand disadvantaged families' schooling options. Schools that received government funding - public and private voucher schools - were required to enroll at least 15 percent vulnerable students,[5] unless the school could demonstrate that it has not received enough applicants to fill the quota.

The Chilean legislature also enacted the General Law of Education (LGE) in 2008 that, among other things, raised the eligibility requirements of schools to participate in the voucher program. Prior to the LGE almost anyone could open a private school and receive government funding without having to conform to any standard of quality. The only formal requirement to open a school in Chile was to have a high school diploma (Montt et al. 2006). The LGE now requires owners to have, at least, a four year college degree.

The government also changed the rules that must be adhered to by schools that receive the extra voucher of SEP. The SEP Act ties the additional per-student voucher to an increased role of the Ministry of Education in monitoring and classifying schools based on student performance and holding them accountable for their outcomes (Elacqua et al. 2009). The Ministry now classifies schools into three categories (Autonomous, Emerging and In Recovery) based on student performance over time and holds them accountable for their outcomes. The classification affects the degree of autonomy schools have in spending additional resources. In cases where schools' academic achievements is higher than schools with comparable student demographics for four years, they are classified as "Autonomous" and have flexibility in the way they choose to spend the additional SEP resources. In cases where schools' academic achievement is close to average, they are classified as "Emerging" and they must present an improvement plan to the Ministry of Education on how they will use most of the additional resources. If a low performing school does not show adequate improvement over four years, it is classified as "In Recovery", and is reconstituted or shut down. The Ministry publishes the school classification on its web site and schools are required to explain to parents the consequences of its classification.

2.3 Information

Expanding access to more and better information is a crucial component of a universal school choice program (Levin 1998). The Chilean government has invested a large amount of resources to improve the quantity and quality of information available to parents.[6] For

[5]This system determines whether a student is "vulnerable" based on individual and household surveys collected by the government nutrition agency JUNAEB (National Scholarship and School Aid Board).

[6]See www.simce.cl and www.infoescuela.cl

example, the Ministry of Education developed simplified parent report cards in 2005 on average test scores and school improvement compared to other similar schools nationally and locally. Schools distribute these report cards to parents and they are also made available electronically. The Ministry also designed an on-line school information system in 2006 that provided information on vacancies in local schools to help parents make better choices. In 2007, the government expanded the web site and began to include information on schooling inputs (class size, facilities, school fees, teacher quality, donations, etc.) and outcomes (test scores, college admission test scores, graduation rates) on all schools as well as pictures of the school's facilities and maps with the school's location.

2.4 Greater supply of private schooling options

In this more favorable environment for parental choice the number of private voucher schools expanded in the R.M. Over the period 2003 to 2009, the total number of schools increased by 3 percent, and the total first grade enrollment declined by 12 percent (see figure 1).[7] Despite sharp declines in first grade enrollments, private voucher school numbers have expanded. The total number of private vouchers schools increased by 17 percent. In contrast, the total number of public schools declined by 7 percent.

Figure 1 Here

Table 1 suggests that private voucher school owners are responding to the weighted voucher and establishing schools in municipalities with different socioeconomic enviroment. As set out in table 1, the number of private voucher schools has increased in municipalities with different socioeconomic environments. The number of public and private non-voucher schools have declined across R.M.[8]

Table 1 Here

3 Survey data supports that parents are exercising more choice

In this section we examine the effects these policy and program shifts may have had on the school search behavior of different types of parents with children enrolled in public and private schools. We conducted face-to-face interviews in 2003 and 2009 (before and after the changes were implemented) with two representative samples of first-grade parents in the R.M. We chose first-grade parents because this is when all parents must make a choice about which school to enroll their child in and incentives to gather information about schools is highest. We constructed the sample frames by first stratifying schools by socioeconomic

[7]The declines in the number of students is likely due to demographic changes. According to data from the National Agency of Statistics the Metropolitan Region has a decreasing Total Fertility Rate (TFR). The TFR declined from 1.99 in 2000-2005 to 1.92 in 2008.

[8]We used the National Household Survey (CASEN) to calculate the proportion of residents living in poverty for each municipality. Then the muncipalities were ordered according their poverty in quintiles. Quintile 1 represents municipalities with the lowest proportion of residents living in poverty and quintile 5 represents municipalities with the highest proportion of people living in poverty.

status and school type (public, private voucher, private non-voucher). Then, first grade parents within the schools were randomly selected from lists provided by the Ministry of Education. The samples were weighted to match the proportions of each stratum with the actual population. Table 2 reports the demographic data for our two samples of first-grade parents in the R.M. by school type.

Table 2 Here

There are significant changes in the demographics of the two samples, mainly due to changes in the population demographics. For example the percentage of single parents has increased and church participation has declined between 2003 and 2009. We will account for these changes in the empirical analysis in the next section.

We begin by identifying the sources of information different types of parents with children enrolled in public and private schools find useful in their search for information on schools. We then focus on the changing role of social networks in the flow of information. Next we explore whether or not parents are traveling longer distances to search for better schools for their children. We undertake simple bivariate analyses of how parent preferences differ by education and by the sector chosen between the two samples and whether or not the differences have changed over time. We then present a multivariate analysis to sort out the independent effects of each factor controlling for other demographic variables. Finally, we evaluate if and how much the changes in the sample population demographics versus changes in the choice environment (regulations and number of schooling options) between 2003 and 2009 influence changes in parent behavior. We use the Oaxaca decomposition technique to disentangle these effects.

3.1 Sources of Information

We approach the study of information by looking at patterns in the sources of information parents use for gathering information about schools in 2003 and 2009. In our qualitative studies, we identified the following categories of information sources that were available to parents: traditional media outlets, official government sources, the Internet, school marketing materials, school personnel, and social networks (friends and family).[9] The total number of sources consulted by the parents increased. In 2003, 27% of parents consulted 4 or more sources, while for 2009, this percentage increased to 38%. In figure 4 we display the sources used in 2003 and 2009. We find that, while parents in 2009 were no more likely to use the media, government sources, and school personnel as sources of information in their search for schools than parents in 2003, they are more likely to search for information on the Internet,[10] use school marketing materials, and talk to their social networks about schooling options.

[9]We asked parents whether they used the following sources to gather information about schools: 1) Media: newspapers, magazines, radio, television; 2) Government: municipality or Ministry of Education; 3) the Internet; 4) School Marketing Materials: flyers, brochures, posters; 5) School Personnel: teachers, secretaries, principals, other; 6) Social Network: relatives, friends or neighbors, co-workers, children's friend's families, neighborhood council.

[10]Increased access to Internet at home and work and the rise of cybercafes, have also increased the amount of information available to parents on schools, especially middle class. According to the National Household Survey (CASEN), Internet access increased by 20 percent points between 2003 to 2009. In 2009 about half of primary school parents in the R.M. had access to the Internet at home and work, compared to only one quarter of parents in 2003.

Figure 2 Here

Tables 3 and 4 display the findings by education level and school sector. Social networks continue to be the source of information most reported by parents, across the board, when choosing a school. However, marketing materials have become an important source of information for parents with less than a college education enrolled in public and private voucher schools. Schools are likely using more aggressive advertising strategies to recruit new students in competitive local schooling markets. Highly educated individuals with children enrolled in private (voucher and non-voucher) schools are more likely to use the Internet to search for schools than less educated public school parents.

3.2 Number of discussants

In the last section, we showed that parents used different sources of information to learn about schools - and that social networks play a key role in the flow of information about schools. Other researchers have also found that one of the most important sources of information is talking with friends and relatives about schools (Schneider et al. 2000). This is a relatively low cost strategy for parents, since information can be gathered through informal discussions.[11] Increasing the number of discussants in an education network is one strategy parents can use to increase the quantity and quality of information on schools. In our study, we asked respondents how many people they had discussed their school choice decisions with, excluding their spouses and their children's teacher. In tables 3 and 4, we present the distribution of the number of discussants in R.M. by education level and school sector chosen. We find that parents increased the size their education networks between 2003 and 2009. In 2003, 14 percent of respondents had no educational discussants and an additional 17 percent had only one discussant. In 2009, only 8 percent had no discussants and less than 12 percent had only one educational discussant. The size of an education network in the R.M. has increased over time across education levels and school types. In 2003, 55 percent of parents that we interviewed reported discussing their school choice decisions with three or more discussants, compared to over 70 percent of respondents in 2009.

Parents are talking to more people and gathering more information about their schooling options before making a decision. Choosing a school for their children is one of the most consequential decisions most parents will make in their lives. Parents, armed with more and better information, seem to be taking this task seriously.

While gathering more information from different sources and having a larger network are valuable ways to obtain valuable information about schools, and we demonstrated that parents have become more informed consumers of education, next we examine whether or not parents are more willing to travel greater distances in search for a better school for their children.

3.3 Distance traveled

To study whether parents were willing to choose schools outside of their neighborhoods, we asked parents whether or not they walk their first grade children to school. Table 3 indicates

[11] See Schneider et al. (2000) for the downside to using this strategy to search for schools.

that respondents in 2009 were more likely to choose schools further away from home than the parents we interviewed in 2003. While less educated parents are more likely to walk their children to school than other parents, the differences across education levels have diminished between 2003 and 2009 (table 4). Most of the decline is explained by the fact that private voucher parents' likelihood to choose schools outside of their neighborhoods increased more than public schools parents between 2003 and 2009 (18.5% versus 5.3%). Parents are willing to travel greater distances to choose a private voucher school for their children.

Table 3 Here

Table 4 Here

In short, these patterns suggest that the changes in the voucher design and information programs introduced between 2003 and 2009 to strengthen parental choice combined with the increased number of private schooling options have had an impact on parental choice behavior. Parents, across the board, regardless of their level of education and regardless of their sector enrollment (public or private), are exercising choice.

4 A Multivariate analysis of choice behavior

The simple bivariate analyses presented above do not control for other factors that may be simultaneously related to parental school search behavior. To determine which variables affect the likelihood that a respondent will cite a particular source of information or choose a school outside of her neighborhood, independent of the effects of other variables, we now turn to a model of parental behavior as a function of a set of parental characteristics that have been found to be correlated with choice behavior (for example, see Schneider et al., 2000 and Elacqua et al., 2006). It's important to note that this analysis is based on the work of Elacqua et al. (2006). They were interested, as we are in this study, in the differences of choice behavior between aggregate group of parents (primarily those of different levels of educational attainment and those with children enrolled in the varios sectors) instead of modeling the individual parental or family decision process or ascribing a causal relationship, so further corrections accounting for the potential endogeneity of the choice sector or type of school in which parents enroll their first grade children with the final choice of school is not crucial for the present argument.

4.1 Sources of Information

In each group of sources of information (Internet, school marketing, and social network) we use a logit model to predict the probability that parents use each source of information. The econometric model is based on the estimation of a latent variable y^* that represents the net benefit of using a specific source of information.

$$y_i^* = \mathrm{x}_i^{'}\beta + u_i \tag{1}$$

The net benefit cannot be observed, but the outcome of the individual following the

decision rule in (2) is observable

$$\begin{aligned} y_i &= 0 \text{ if } y_i^* \leq 0 \\ y_i &= 1 \text{ if } y_i^* > 0 \end{aligned} \tag{2}$$

Equation (3) presents the logit model that predicts the probability that a parent uses one of the three types of sources of information we analyze in the previous section:

$$Pr(y = 1|\mathbf{x}) = \frac{e^{\mathbf{x}\beta}}{1 + e^{\mathbf{x}\beta}} \tag{3}$$

The x's are our ten independent variables we describe below including a constant and the β's are the coefficients, which are estimated using maximum likelihood and considering the survey design. In particular, we adjust by clustering by schools and using school weights, defined by the ownership type of the school and their student socioeconomic status. The independent variables for which we estimate coefficients are:

- SES, represented by two indicator variables indicating whether the parent has completed high school (Parent has completed high school = 1) or college (Parent has completed college = 1)[12].
- School type, represented by two binary variables. The first variable indicates whether the parent has chosen a private voucher school (Private voucher = 1) and the second shows if the parent chose a private non-voucher school (Private non-voucher = 1)
- Employment status, measured by an indicator variable indicating whether the parent works outside the home (Employed parent = 1)
- Gender, represented by an indicator variable indicating if the parent is female (Female parent = 1)
- Proximity, measured by whether or not a student walks to school (Student walks to school = 1)
- Church attendance, measured by an approximately continuous variable measuring the frequency of a parent's church attendance per annum[13] (coded 0 = never; 1 = rarely; 3 = only on major holidays; 6 = five or six times a year; 12 = about once a month; 26 = about every two weeks; 52 = about once a week; 365 = every day).
- Length of residence, a continuous variable that measures the number of years a parent has lived in a municipality.

[12]We did not use household income to create an SES index variable because of potential underreporting bias, which is common in Chilean surveys (see, for example, Larrañaga, 2005)

[13]Church attendance is included as a general measure of involvement with the social life of a community and a school-based activities (Schneider et al. 1997) and a preference for teaching moral values (Weiher & Tedin 2002).

Table 9 shows the coefficients for the years 2003 and 2009. It also shows the Average Marginal Effects (AME) associated with each independent variable. The AME is the average of each individual's marginal effect. That is the average change in the probability that a parent uses a source of information when one of the regressors changes.[14] In the case of the variables related to SES and school type, the AME indicates the average change in the likelihood with respect to the reference variable, that is, a parent with less than a high school education in the SES case and if the school sector chosen was public in the latter case. In the rest of the binary variables the AME indicates the change in the dependent variable due to the change of the status of the regressor from 0 to 1.

Finally, to analyze whether the changes in the results between 2003 and 2009 are due to changes in the demographic characteristics of parents, such as higher levels of laboral participation, versus changes in the coefficients defining the relationship between these characteristics and outcomes in the populations, we use the Oaxaca decomposition technique. This technique is based on the works of Oaxaca and Blinder in 1973 that linearly estimated a common set of parameters intending to explain different outcomes for two differents groups of individuals (A and B). The differences in their outcomes are explained by two factors: i) the different endowments between group A and B ($\overline{\mathrm{x}}_{A,B}$), and ii) the different coefficients that measure the effect of each independent variable on the outcome ($\hat{\beta}_{A,B}$). The results will vary depending on the structure considered as reference (A or B). The Oaxaca-Blinder strategy is not applicable to non linear models such as the logit model. For this reason, we use the extension of the Oaxaca-Blinder model proposed by Bauer & Sinning (2008). We use group A as a reference in the non-linear decomposition, which is defined as:

$$\Delta_A^{NL} = \left[E_{\beta_A}(Y_{iA}|\,\mathrm{x}_{iA}) - E_{\beta_A}(Y_{iB}\big|\,\mathrm{x}_{iB})\right] + \left[E_{\beta_A}(Y_{iB}|\,\mathrm{x}_{iB}) - E_{\beta_B}(Y_{iB}\big|\,\mathrm{x}_{iB})\right] \tag{4}$$

Where $E_{\beta_g}(Y_{ig}\big|\,\mathrm{x}_{ig})$ is the conditional expectation of Y_{ig} and $E_{\beta_g}(Y_{ih}\big|\,\mathrm{x}_{ih})$ is the conditional expectation of Y_{ih} evaluated in the vector β_g, with g,h=(A,B) and g $\neq h$.

Table 9 reports the results of the non linear decomposition. In this case group A are the parents surveyed in 2003 and group B are the parents interviewed in 2009. We present the results taking A as a reference (parents at 2003) assuming that the true structure of the relationship between independent and dependent variables is the one in 2003 .[15]

Table 5 Here

Table 5 presents the results of the three logit models related to the sources of information (Internet, school marketing, and social network). As set out in table 5, the digital gap persists between college graduates and other parents, despite the across the board increase in the use of the Internet as a source of information on schools. Parents that choose private schools (voucher and non-voucher), all else equal, are more likely to use the Internet as a source of information compared with public schools parents. Table 5 also shows that the differences

[14]This information is added because an explanatory variable's estimated coeffcient can rarely be used to infer the true nature of the relationship between the explanotary variable and the dependent variable (Wiersema & Bowen 2009). We also decided to show the AME instead of the marginal effect at the means of independent variables because it is more informative and it is unlikely that any single observation actually has the mean value of all variables (Train, K., 1986, as cited in Hoetker, 2007).

[15]We also did the exercise taking group B as the reference, and the results, available upon request show the same trends.

across education levels are no longer statistically significant in a parent's decision to use school marketing materials. Moreover, parents that choose neighborhood schools (*student walks to school*) are more likely to use school marketing materials (parents whose child walks to school have an 18.1% higher probability of using school marketing materials) as a source of information about schools. Distributing school marketing materials seems to be a popular strategy to attract parents to neighborhood schools.

Finally, we also report changes in a parents likelihood to use their social networks to gather information on schools. In 2003, high school graduates and parents that worked had a higher probability of using social networks to gather information about schools than other parents. In 2009, the differences are no longer statistically significant.

In all three models, the Oaxaca-Blinder decomposition extension for non-linear models suggests that the changes found between 2003 and 2009 are mainly explained by changes in the coefficients. In short, the demographic changes between 2003 and 2009, such as more years of schooling, higher labor participation and greater share of single parents, explain only a small portion of the changes. Almost all variation between parents' behavior in 2003 and 2009 are explained by differences in the coeffcients. Because the component of the decomposition associated with the coefficients variations it is a residual term that accounts for everything that the change in characteristics or endowments cannot (Reimers 1983, Cotton 1988), there are a number of interpretations. This term is explained mainly by unobservable changes, which means that any event that changed between 2003 and 2009, that affected unobservable characteristics of parents could explain the greater involvement in their school's search behavior. Besides the changes in the regulation, the greater availability of schooling information, and the greater quantity of schools in the R.M., described in the section 2, other events may have also affected parent behavior. The major students protests in 2006 demanding for greater quality and equity in primary and secundary education, known as the "penguin revolution", could contribute to become parents more aware about educational problems explaining partially changes in parents behavior.[16]

4.2 Number of discussants

To determine which variables affect the likelihood that a respondent will consult a larger education network, we estimated an ordered logit model. An ordered logit is a multinomial model in which the dependent variable has ordered outcomes, in this case the number of education discussants. In this non-linear model the ordered outcomes are modeled to arise sequentially as a latent variable y_2^*, that has a range from $-\infty$ to ∞, and crosses progressively higher thresholds. In this case, y_2^*, represents how likely parents are to discuss with other

[16]In 2006 over half a million students stopped academic activities and walk out the streets claiming that low quality education needed to improve schools. They caught the media's attention and changed the government's agenda. Because of this it is likely that parents' attittude toward education changed. Hoover-Dempsey & Sandler (1995) suggest that parents become involved in their children's education, among other reasons, because their reaction to the opportunities and demand characteristics presented by their children. It is possible that many parents with children starting school interpreted the protests as an opportunity, invitation or demand to became more involved (e.g. Epstein (1986) and Hoover-Dempsey & Sandler (1995)).

people about the school they will choose for their child.

$$y_{2i}^{*} = \mathrm{x}_{i}^{'}\beta + u_i \tag{5}$$

Where x represents the vector of independent variables (the same used in the above logit models) without considering a constant, β are the coefficients to estimate and y_{2i}^{*} is the latent variable, that has a correspondence with each category of answer according to the cut points or thresholds (τ_i):

$$y_{2i}^{*} = \begin{cases} 0 & \text{discussants if } -\infty \leq y_{2i}^{*} < \tau_1 \\ 1 & \text{discussant if } \tau_1 \leq y_{2i}^{*} < \tau_2 \\ 2 & \text{discussants if } \tau_2 \leq y_{2i}^{*} < \tau_3 \\ 3 & \text{or more discussants if } \tau_3 \leq y_{2i}^{*} < \infty \end{cases} \tag{6}$$

Therefore, when the latent variable crosses a threshold, the observed category also changes. The three thresholds τ_1, τ_2 and τ_3 define the four levels of the latent variable associated with each observable category. The β coefficients are estimated by maximum likelihood. Table 6 presents the estimation of these coefficients and the AME for having three or more discussants associated with each variable in 2003 and 2009

Table 6 Here

The results of the multivariate model presented in table 6 confirm most of the bivariate patterns. In 2009, the differences in having three or more discussants are no longer statistically significant by parent education level or school sector chosen. In 2003, most of control variables are statistically significant to explain the number of contacts used to gather information about schools (with the exception of *private non voucher school* and *church attendance*) . In 2009 none of the control variables are statistically significant. Parents, across the board, are discussing their school choice options with a larger network of people. The Oaxaca-Blinder decomposition extension for non-linear model also indicates that these changes are mainly explained by structural factors and other non-observables characteristics (coefficients), and not to changes in observable variables.

4.3 Distrance traveled

Finally, we use a logit model to examine the factors that explain whether or not a parent chooses a school outside of her neighborhood. Private voucher school parents, all else equal, are less likely to walk their children to school than parents that chose a public school. A parent that chose a private voucher school had a 20.9% lower probability of choosing a neighborhood school compared to similar parents that chose a public school. Differences between parents employed and families that own a car remain significant. Both are associated with a lower probability of choosing a neighborhood school (12% and 19.3% respectively in 2009).

The decomposition results also shows that changes are mainly explained by coefficients, and only one fifth of changes are attributable to changes in observable characteristics

Table 7 Here

In short, the results of the multivariate analysis, presented in Tables 5, 6, and 7, confirm most of the bivariate patterns. It appears that parents are taking advantage of the improved school choice environment and opportunities and searching for better schools for their children. In the next section, we examine whether the more involved parents in choosing schools are more satisfied with their choices.

5 Less satisfied with their school of choice

More informed parents, that invest more time in choosing the right school for their children should have a greater trust in the children's school because they were able to choose according to their beliefs and feeling of belonging to a community (Coleman 1990). School advocates mantain that when parents are able choose their child's school, consumer satisfaction should increase. According to works of Friedman (1955), and Levin (1991) parents with good matches between their expectations and what schools offers should be more satisfied with their children's schools that other parents. For example, Schneider et al. (2000) found that, for data from New York and New Jersey school districts, choice does increase the match between what parents want and what their children's school deliver driving them to be more satisfied. They hypothesize that the more a choice system resembles a competitive market with many options and maximum incentives for parents to be involved, the more likely choice will lead to more parental satisfaction. Empirical research in choice systems is nearly unanimous in linking various forms of choice to increased parent satisfaction; (Peterson 1998) summarizes results from the Milwaukee, Indianapolis, San Antonio, and Cleveland voucher programs and concludes that if the only thing that counts is consumer satisfaction, school choice is a clear winner. Most of these works are based in cross sectional analysis comparing parents that chooses schools with those in public schools. Buckley & Schneider (2006) evalute the evolution of parental satisfaction over time using data from a four-wave panel study of parents in Washington, DC, with children in public and charter schools. Performing a cross sectional analysis they found that charter parents are more satisfied with their children's school, and differences are remarkably robust to correction for self-selection of parents into different types of schools. But, they also found that any charter school advantage found in cross-sectional analysis is wiped out across all measures of satisfaction they use when panel data is analyzed. In short, when parents has stayed a long time in public and charter schools, satisfaction tends to be the same in both sectors.

In this section we replicated the bivariate and multivariate analysis from the previous sections to evaluate differences in parental satisfaction across type of schools and educational attainment over time. We asked parents to evaluate, on a scale from 1 to 7, the schools in their comuna, their own schools, and three specific aspects of their child's school: teacher, principal, and school facilities. We also asked them how satisfied they were on a scale from 1 to 5 (from very disatisfied to very satisfied) with different dimensions of their own school: quality, coordinated work, extracurricular activities, discipline, opportunities for parent participation, costs, location, and safety.

Figure 3 presents the percentage of parents that evaluates schools and different aspects of schools with a 6 or 7, and the percentage of parents very satisfied with different dimensions of their own school in 2003 and 2009.

Figure 3 Here

Parents giving good grades to schools on their comuna decreased in 18 percentage points, while this percentage declined by 14 and 7 percentage points for public and private voucher schools respectively. Overall evaluations of schools is worse in 2009 than in 2003. When it comes to the evaluation of different aspects of their child's school the fraction of parents giving a high evaluation of their own school decreased significantly (11 percentage points). While they seem to have similar evaluations of teachers and facilities in their school of choice in 2003 and 2009, the percentage of parents giving a good evaluation to the principal is 18 percentage points lower in 2009. To analyze further potential reasons that explains the reduce satisfaction with their child's school, besides the perception of the principal, we exhibit the satisfaction with various dimensions of schools (figure 3). While satisfaction with values, class size, location and safety is high and/or hasn't changed significantly, the satisfaction with quality, coordinated work, extracurricular activities, discipline and opportunities for parents participation show significantly lower levels in 2009 compared to 2003.

5.1 Bivariate analysis: Parents from all SES and choosing all types of schools are less satisfied

In this section we only show the dimensions that had shown a significant decrease between 2003 and 2009 for the overall population of R.M.[17] Tables 8 and 9 presents the results by parents educational level and by type of school chosen respectively.

Table 8 Here

Table 9 Here

There are no statistically significant increases in any school's input evaluated or the level of satisfaction of any dimension measured. Parents with higher educational attainment tend to evaluate worse schools in their comuna, and are less satisfied with the supply of extracurricular activities. Comparing changes between 2003 and 2009, less than high school parents has much lower evaluation of principal of their children's school, and are less satisfied with the coordination of work between employees in the school, discipline, and opportunities for parents participation. More than high school parents has a lower evaluation of the principal in the school of their choice, and are less satified with the levels of respect and extracurricular activities. High school parents is the group that has decreased their satisfaction's levels in most of the evaluated dimensions. The bivariate analysis also shows that all satisfaction and evaluation's dimensions, exceptuing the related to opportunities for parents participation, used to present significant differences by type of school chosen in 2003. The decrease in school's satisfaction nine years later was primarily concentrated in private voucher school parents. This had as a consequence that many of the satisfaction's dimensions measured no longer presents significant differences between parents choosing the various school sectors (own's school and principal evaluation, levels of satisfaction with quality and coordinated work). While public and non-voucher parents exhibit significant losses in satisfaction with the schools of their comuna, the principal, and the extracurricular activities in their children's school, private voucher parents decreased their satisfaction in all dimensions considered.

[17] So we discarded teacher and facilities' evaluations, and satisfaction with location, cost, safety, and class size.

5.2 Multivariate analysis shows drop in private voucher parents' satisfaction

Table 10 presents the average marginal effects associated to the logit models of evaluation trying to explain whether parents gave a good evaluation to schools in their comuna, public schools, own school and the principal.[18] Control variables are the same used in the model defined in section 4. Few significant differences exists by SES of families. The most noticeable is related to evaluation of school in their comuna; unlike 2003, in 2009 high school and more than high school parents are less satisfied with schools in their comuna holding other characteristics constant. In contrast, there are significant differences between parents choosing differents types of schools in almost all dimensions. Private (voucher and non-voucher) parents evaluates better their own school and principal than public parents. Differences seems to hold in both years in these dimensions, nevertheless in the case of own school evaluation differences between public and private voucher parents appears to attenuate (24.6% higher probability of giving a good grade in 2003 versus 14.4% in 2009). In this dimension there are also significant differences between parents that chose a school in their neighborhood versus parents whose children walks to school, and between parents employed and not employed. In particular, parents searching and choosing a school outside their neighborhood tend to evaluate worse the school of their children (-10% less likely to give a 6 or 7 grade in a 1 to 7 scale compared to parents that chose a neighborhood school), and working parents evaluate worse their own school compared to not working parents (-21.5%).

Table 10 Here

Table 11 exhibits the AME related to logit models explaining if parents are very satisfied with each dimension presented. From the 7 dimensions, only satisfaction with extracurricular activities shows differences by educational attainment of parents, those who achieve college education are less likely to be very satisfied than those with less than high school (-22.9% in 2009). Significant differences by parents choosing different school type exists in parental satisfaction. Only in satisfaction with opportunities for parent participation there are no differences between parents in the various types of schools, in the rest of dimensions private voucher and non-voucher parents are more satisfied than public school parents. However, differences between private voucher and public parents are weaker in 2009 compared to 2003 for 5 of the 6 dimensions that presents significant differences in both years (quality, values, coordination, extracurricular and discipline in their own school). There are also differences between employed and non employed parents in 2009. Opposed to 2003, employed parents in 2009 are less likely to be very satisfied in 4 out of 7 dimensions (quality, values, coordination, and respect).

Table 11 Here

For all logit models in Table 10 and Table 11 the nonlinear decomposition of results shows the same; changes between 2003 and 2009 are mainly explained by structural changes. In this sense it is likely that two phenomena help to explain most differences. First, parents are more informed about schools in 2009 compared to 2003, so they can contrast the schools' expected and real outcomes more easily and exercise an stricter accountability on schools. Second, the

[18] We used as dependent variable a dichotomus one taking the value of 1 when parents give a grade of 6 or 7 in a 1 to 7 scale.

"Penguin revolution" might had changed expectations on educational results. The protests on 2006 not only could have raised parents' awareness about problems in education, but also might have generated expectations of improvements in results. The protestations concluded with an "historical political agreement" between the two major coalitions in Chile. As a consequence major reforms were done in education. A system of school quality assurance was promised and the law that established the minimum requirements in primary and secondary education was replaced for another with stricter requirements to open schools. By 2009, many of these reforms have not been applied completely, so, it is possible that parents raised their expectations before the reforms turn into concrete actions.

6 Conclusion and policy implications

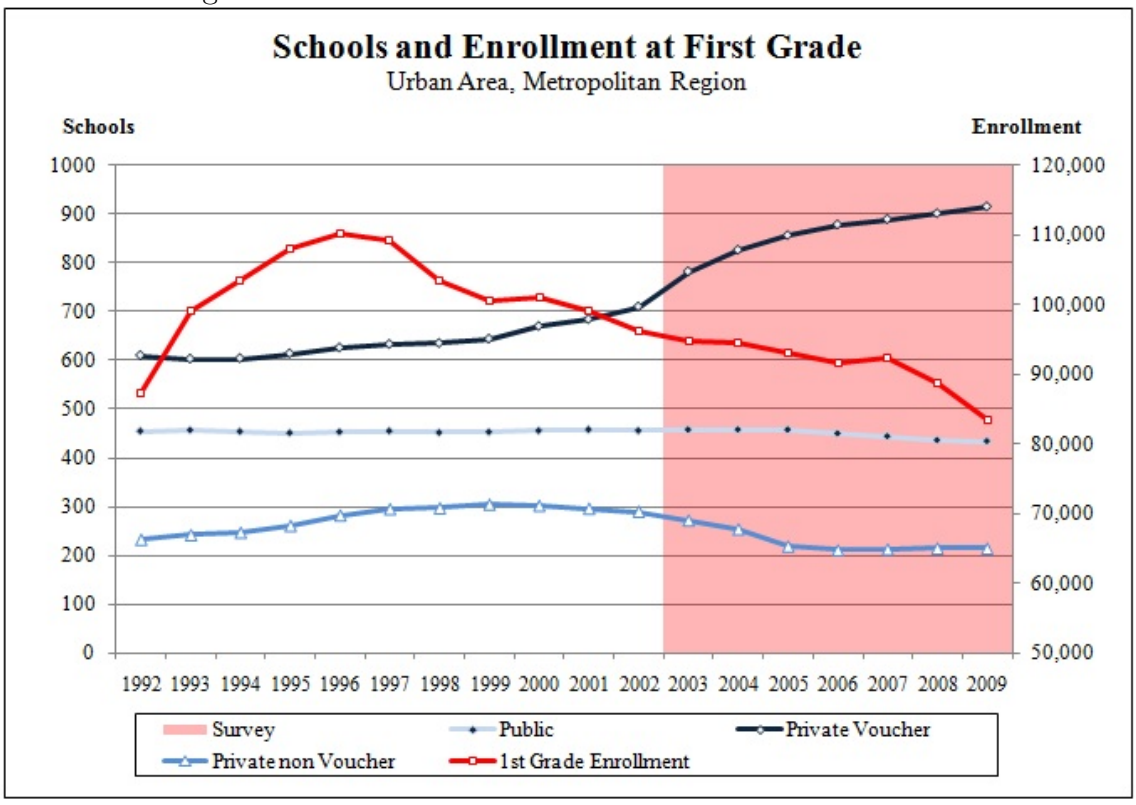
This paper examines the role of vouchers as instruments of school policy and investigates the effect of major changes in Chile's national voucher program between 2003 and 2009 on parent search behavior and on satisfaction with the school of their children. We find that parents and schools have responded to some of the changes in key aspects of Chile's voucher program. Parents are willing to spend more time and resources to search for and enroll their children and are more likely to choose a school outside their neighborhood.

We also find that evaluation of their children's school and satisfaction on several dimensions has decreased between 2003 and 2009. More involved parents in the process of choosing schools are less satisfied with the service they get. Their average satisfaction level declined in the dimensions of quality service, coordinated work, opportunities for participation, extracurricular activities and values in school. When parents evaluate school's inputs (i.e. infrastructure, teachers, and principal), only the principal has a worse evaluation between 2003 and 2009. This contrast with most empirical evidence showing that an increased choice enviroment enhances parental satisfaction.

We believe that one of the reasons for the lesser satisfacion with the service parents get, reside in higher expectations. There is no evidence that schools give a worse service in 2009 compared to 2003. In fact, overall results for the R.M. in standarized tests (math and reading) and public resources spent on the educational system grew significantly between these years. However, more information available about school performance, new laws promising an architecture that will ensure quality, more use of marketing materials as a source of parents information, and greater private supply of schools has configured an scenario in which parents has the incentives to be more demanding and to be the main agent to keep accountable the system. This is specially true among private voucher parents, that are those with the greatest drop in satisfaction.

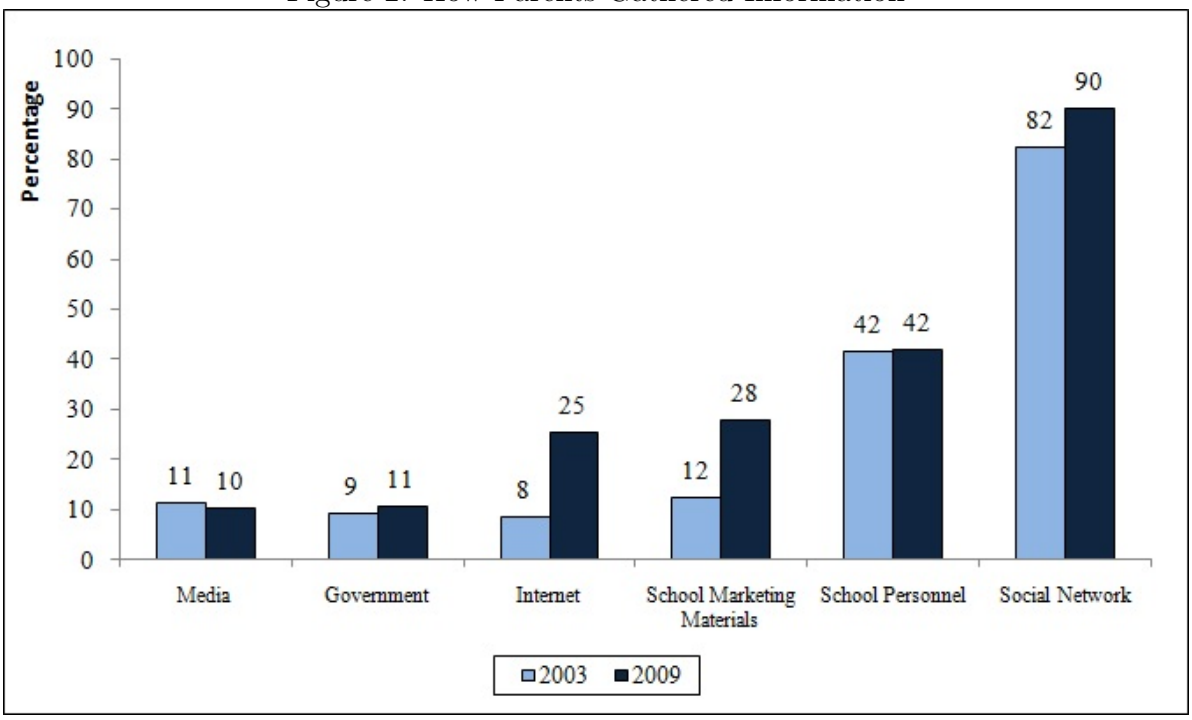
Even though the decline on parental satisfaction may be interpreted as inefficiency of schools, it also can be thought as an accountability mechanism that generate pressure for improvement on schools. If government and schools value parents' opinion and are willing to offer them more tools to keep them accountable, school management and their outcomes should improve in the future. For example, for the case of assigning SEP resources, government could consider levels of parents satisfaction in their school quality definition.

Figure 1: First Grade Schools and Enrollment Evolution



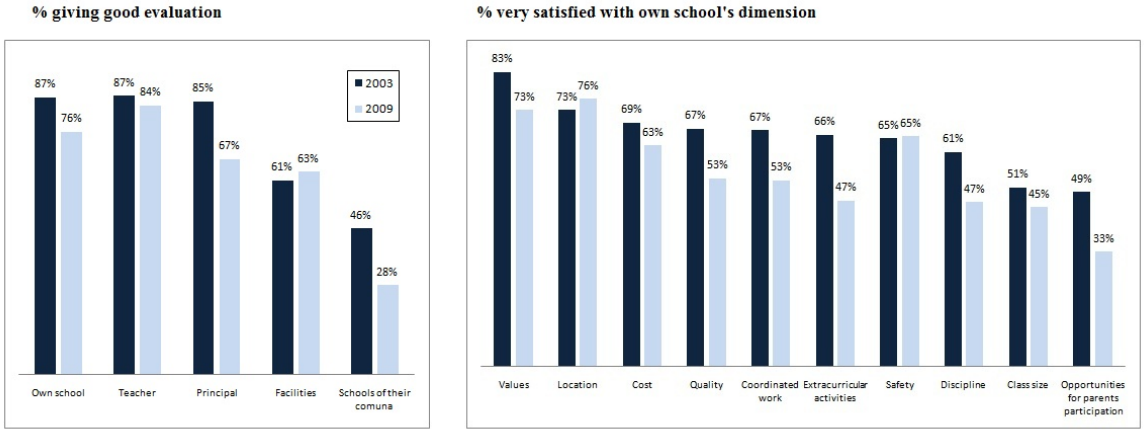
Source: Ministry of Education of Chile and authors' calculations

Figure 2: How Parents Gathered Information



Source: Survey of Parents in Metropolitan Region of Santiago, Chile

Figure 3: Evaluation and satisfaction with own school dimensions



Source: Survey of Parents in Metropolitan Region of Santiago, Chile

Table 1: Number of Schools by school type in 2003 and 2009

	Quintile by municipality's poverty(*)					Total
	Q 1	Q 2	Q 3	Q 4	Q 5	
Public Schools						
2003	61	125	106	104	62	458
2009	60	116	100	99	59	434
% Diff	−2%	−7%	−6%	−5%	−5%	−7%
Private Voucher Schools						
2003	130	237	201	104	109	781
2009	163	254	229	131	137	914
% Diff	25%	7%	14%	26%	26%	17%
Private non Voucher Schools						
2003	179	48	22	20	3	272
2009	145	37	16	16	1	215
% Diff	−19%	−23%	−27%	−20%	−67%	−21%
All Schools						
2003	370	410	329	228	174	1511
2009	368	407	345	246	197	1563
% Diff	−1%	−1%	5%	8%	13%	3%
First Grade Enrollment						
2003	24,851	25,348	16,666	16,235	11,550	94,650
2009	21,817	23,230	14,726	13,103	10,528	83,404
% Diff	−12%	−12%	−8%	−12%	−19%	−9%

(*): Municipalities were ranked by poverty: Quintile 1 represents the least poor municipalities while quintile 5 the poorest

Source: Ministry of Education of Chile and authors' calculations

Table 2: Sample Demographics

Variables	Total		Chosen school type					
			Public		Private Voucher		Private non Voucher	
	2003	2009	2003	2009	2003	2009	2003	2009
Schools	67	73	26	22	29	43	12	8
Surveyed Parents	536	584	208	176	232	344	96	64
Educational Level								
Less than High School	36.5%	34.9%	57.1%	60.5%	38.4%	34.6%	4.6%	5.0%
High School	32.4%	41.5%	33.0%	27.7%	38.4%	46.2%	5.6%	13.9%
College	31.1%	23.7%	9.9%	11.9%	23.3%	19.2%	89.9%	81.1%
Car at Home	42.5%	45.5%	28.0%	17.6%	35.6%	43.6%	90.9%	100.0%
Employed Parents	40.8%	51.1%	33.0%	38.7%	34.8%	48.3%	75.9%	92.7%
Single Parents	20.5%	27.6%	25.3%	33.1%	20.0%	27.1%	17.3%	24.6%
Woman	80.5%	82.7%	91.5%	86.6%	91.0%	82.7%	80.5%	77.4%
Children Walks to School	57.6%	44.5%	72.2%	66.9%	63.4%	44.9%	14.6%	11.7%
Years of residence in comuna	18.8	20.2	17.8	24.6	20.0	20.5	14.9	12
Attend to Church at least Once a Month	54.2%	34.0%	49.1%	28.6%	57.9%	35.8%	44.0%	24.3%

Source: Survey of Parents in Metropolitan Region of Santiago, Chile

Table 3: Type of Sources, by Parent Education Level

Variables	Parent Education Level: Less than High school			High school			College			Association[b] by parent education	
	2003	2009	Diff.[a]	2003	2009	Diff.[a]	2003	2009	Diff.[a]	2003	2009
Internet	0.01%	9.3%	9.3%**	2.8%	25.7%	22.9%***	24.4%	49.3%	24.9***	Yes***	Yes***
School Marketing	7.7%	28.9%	21.2%***	10.9%	27.9%	17%***	17.2%	27.3%	10.1%	No	No
Social Network	74.9%	92.1%	17.2%***	91.6%	89.1%	-2.5%	82.2%	88.8%	6.6%	Yes***	No
Number of Disussants											
No Discussants	12.8%	7.1%		12.3%	10.4%		16.2%	5.7%			
One Discussant	24%	14.2%		18.8%	10.6%		7.8%	11.8%			
Two Discussants	20.7%	9.7%		10%	8.2%		8.9%	9.5%			
Three or more Discussants	42.5%	69.1%	26.6%***	59%	70.8%	11.8%	67.1%	74.6%	7.5%	Yes***	No
Student Walks to School	72.2%	66.9%	-14.7%*	63.4%	44.9%	-19.6%***	14.6%	11.7%	6.1	Yes***	Yes***

[a]: To assess whether the means' differences are statistically different from each other we used a t-test adjusted by sample design;
[b]: To assess whether the results are independent by parent education within each year we applied the Pearson test corrected by sample design.
* significant at 10%, ** significant at 5%, *** significant at 1%
Source: Survey of Parents in Metropolitan Region of Santiago, Chile

Table 4: Type of Sources, by Chosen School Type

Variables	Chosen School Type: Public			Private voucher			Private non-voucher			Association[b] by school type	
	2003	2009	Diff.[a]	2003	2009	Diff.[a]	2003	2009	Diff.[a]	2003	2009
Internet	0.15%	5.8%	5.65%**	4.3%	25.7%	21.4%***	36.6%	48.7%	12.1%	Yes***	Yes***
School Marketing	13.6%	25.6%	12%**	13.1%	29.6%	16.5%***	8%	14.9%	6.9	No	No
Social Network	76.3%	92.2%	15.9%***	85.2%	90.2%	5%	77.2%	86.6%	9.4%	No	No
Number of Disussants											
No Discussants	26.4%	9%		9%	7.8%		20.9%	9.4%			
One Discussant	23.8%	5.9%		17.5%	13.3%		9.4%	4.1%			
Two Discussants	14.7%	11.8%		13.3%	8.8%		12.3%	10.1%			
Three or more Discussants	35.1%	73.3%	26.6%***	60.2%	70.2%	11.8%	57.4%	76.4	7.5%	Yes***	No%
Student Walks to School	72.2%	66.9%	-5.3%	63.4%	44.9%	-18.5%***	14.6%	11.7%	2.9%	Yes***	Yes***

[a]: To assess whether the means' differences are statistically different from each other we used a t-test adjusted by sample design;
[b]: To assess whether the results are independent by parent education within each year we apply the Pearson test, uncorrected and corrected by sample design. The p-value shown corresponds to the corrected test
* significant at 10%, ** significant at 5%, *** significant at 1%
Source: Survey of Parents in Metropolitan Region of Santiago, Chile

Table 5: Type of Sources, Logit Model

	Internet				School Marketing				Social Network			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Control Variables	Coef 2003	AME 2003	Coef 2009	AME 2009	Coef 2003	AME 2003	Coef 2009	AME 2009	Coef 2003	AME 2003	Coef 2009	AME 2009
Chosen school is private voucher	3.043***	0.0556**	1.382***	0.174***	-0.0653	-0.0072	0.298	0.055	0.458	0.061	0.0909	0.008
	(0.576)	(0.0221)	(0.518)	(0.05408)	(0.481)	(0.0538)	(0.374)	(0.067)	(0.383)	(0.054)	(0.425)	(0.0386)
Chosen school is private non voucher	4.294***	0.1433***	1.354**	0.1691**	-1.11	-0.087	-0.361	-0.057	-0.507	-0.086	0.165	0.014
	(0.681)	(0.0472)	(0.604)	(0.0732)	(0.879)	(0.062)	(0.747)	(0.112)	(0.552)	(0.098)	(0.693)	(0.059)
Parent completed High School	5.383***	0.05	1.029	0.143*	0.419	0.031	0.0805	0.0148	1.262**	0.157***	-0.129	-0.0115
	(1.258)	(0.0305)	(0.618)	(0.0817)	(0.548)	(0.0402)	(0.340)	(0.0627)	(0.535)	(0.061)	(0.530)	(0.047)
Parent completed College	6.626***	0.133***	1.851***	0.315**	1.508**	0.17**	0.252	0.048	0.391	0.063	0.099	0.008
	(1.137)	(0.0318)	(0.583)	(0.0883)	(0.633)	(0.084)	(0.510)	(0.0996)	(0.308)	(0.05)	(0.607)	(0.049)
Surveyed parent is female	-0.681	-0.0416	-0.162	-0.0271	-0.946**	-0.119	0.577	0.10	-0.147	-0.019	0.255	0.024
	(0.636)	(0.0389)	(0.396)	(0.0671)	(0.470)	(0.072)	(0.515)	(0.0797)	(0.767)	(0.097)	(0.431)	(0.043)
Surveyed parent is employed	0.0868	0.0048	0.227	0.0373	-1.083**	-0.099**	0.0625	0.0117	0.731**	0.094**	-0.619	-0.052
	(0.415)	(0.0233)	(0.265)	(0.0427)	(0.518)	(0.046)	(0.306)	(0.0575)	(0.343)	(0.04)	(0.380)	(0.0298)
Student walks to school	-0.744	-0.0411	-0.488	-0.0794	-0.0369	-0.0036	0.931**	0.182**	-0.226	-0.03	0.277	0.0235
	(0.608)	(0.0343)	(0.318)	(0.0493)	(0.244)	(0.024)	(0.388)	(0.0768)	(0.348)	(0.046)	(0.341)	(0.028)
Parent church attendance	-0.0069	-0.0004	-0.0041	-0.0007	-0.0032	-0.0003	-0.0018	-0.0003	0.001	0.0002	-0.000175	-0.00001
	(0.006)	(0.0003)	(0.0026)	(0.0004)	(0.003)	(0.0003)	(0.002)	(0.0003)	(0.002)	(0.0003)	(0.00195)	(0.0002)
Years of residence in comuna[a]	-0.0294*	-0.00164*	-0.00433	-0.00071	-0.0088	-0.0009	0.00287	0.0005	0.011	0.001	0.0261	0.002
	(0.0172)	(0.00092)	(0.0120)	(0.0019)	(0.0182)	(0.0018)	(0.0116)	(0.002)	(0.013)	(0.0017)	(0.018)	(0.002)
Constant	-10.121***		-3.0118***		-1.0187		-2.278***		0.679		1.718***	
	(1.513)		(0.874)		(0.743)		(0.799)		(0.865)		(0.646)	
Samplesize	518	518	562	562	518	518	562	562	518	518	562	562
McFadden's (adjusted) pseudo R^2	0.388		0.13		0.073		0.050		0.07		0.032	
Non linear decomposition												
Percentage explained by:												
Characteristics	12.457				-13.309				-11.023			
Coefficients	87.543				113.309				111.023			

Coefficients are the results of a survey weighted logit regressions with clustering by schools. Marginal effects calculated as the average of the sample. All control variables are indicator variables except for "Parent church attendance" which is an index variable ranging from 0 to 365 indicating annual church visits, and "Year of residence in comuna" which is a continuos variable
The marginal effect of indicator variables is the discrete change from the base level. In the case of type of school the base is a municipal school, for educational level is less than high school, and for the rest of indicator variables are the discrete change from 0 to 1.
[a] Comunas are recognized neighborhoods in Santiago around which many municipal services are organized.
Standard errors in parenthesis. Standard errors of marginal effects were estimated by delta method.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Three or more discussants, Ordered Logit Model

Control Variables	(1) Coef 2003	(2) AME 2003	(3) Coef 2009	(4) AME 2009
Chosen school is private voucher	0.948***	0.216***	-0.214	-0.043
	(0.245)	(0.0540)	(0.289)	(0.057)
Chosen school is private non voucher	0.134	0.0302	0.116	0.0216
	(0.370)	(0.0843)	(0.437)	(0.081)
Parent has completed high school	0.391*	0.0893*	0.152	0.032
	(0.228)	(0.0509)	(0.352)	(0.0757)
Parent has completed College	0.961***	0.212***	0.416	0.084
	(0.293)	(0.0602)	(0.441)	(0.087)
Surveyed parent is female	1.124**	0.248**	0.0195	0.004
	(0.521)	(0.106)	(0.404)	(0.083)
Surveyed parent is employed	0.614**	0.1356***	-0.188	-0.0387
	(0.252)	(0.0528)	(0.262)	(0.0537)
Student walks to school	0.425**	0.0949**	-0.0427	-0.00879
	(0.203)	(0.0461)	(0.271)	(0.0557)
Parent church attendance	-0.0017	-0.0004	0.000818	0.0002
	(0.0012)	(0.0003)	(0.00179)	(0.0004)
Years of residence in comuna	0.0146*	0.003*	0.0114	0.0023
	(0.0079)	(0.00173)	(0.0137)	(0.0028)
Threshold 1	0.809		-2.267***	
	(0.6218)		(0.4785)	
Threshold 2	1.915***		-1.234**	
	(0.624)		(0.468)	
Threshold 3	2.566***		-0.736	
	(0.569)		(0.471)	
N	515	515	558	558
McFadden's (adjusted) pseudo R^2	0.0542		0.005	
Reference Group	**2003**			
Percentage explained by:				
Characteristics	11.493			
Coefficients	88.507			

Coefficients are the results of a survey weighted logit regressions with clustering by schools. Marginal effects calculated as the average of the sample. All control variables are indicator variables except for "Parent church attendance" which is an index variable ranging from 0 to 365 indicating annual church visits, and "Year of residence in comuna" which is a continuos variable. The marginal effect of indicator variables is the discrete change from the base level. In the case of type of school the base is a municipal school, for educational level is less than high school, and for the rest of indicator variables are the discrete change from 0 to 1.

[a] Comunas are recognized neighborhoods in Santiago around which many municipal services are organized.

Standard errors in parenthesis. Standard errors of marginal effects were estimated by delta method.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Distance traveled, Logit Model

Control Variables	(1) Coef 2003	(2) AME 2003	(3) Coef 2009	(4) AME 2009
Chosen school is private voucher	-0.284	-0.058	-0.939***	-0.209***
	(0.489)	(0.099)	(0.311)	(0.065)
Chosen school is private non voucher	-1.946***	-0.4096***	-2.213***	-0.456***
	(0.703)	(0.134)	(0.686)	(0.113)
Parent has completed high school	-0.15	-0.0289	0.0543	0.0114
	(0.309)	(0.059)	(0.236)	(0.049)
Parent has completed College	-0.05	-0.0095	0.145	0.03
	(0.433)	(0.0829)	(0.589)	(0.123)
Family has a car	-0.816*	-0.17*	-0.996***	-0.222***
	(0.465)	(0.0976)	(0.284)	(0.0614)
Surveyed parent is female	0.521	0.1046	-0.0462	-0.0098
	(0.477)	(0.097)	(0.232)	(0.049)
Surveyed parent is employed	-0.828***	-0.171***	-0.595*	-0.13*
	(0.306)	(0.0653)	(0.315)	(0.0675)
Parent church attendance	-0.00299	-0.00058	-0.00200	-0.0004
	(0.0036)	(0.0007)	(0.00180)	(0.0004)
Years of residence in comuna	0.0049	0.00095	-0.0216*	-0.00455*
	(0.0098)	(0.00188)	(0.0125)	(0.0026)
Constant	1.065		1.899***	
	(0.745)		(0.481)	
Sample size	518	518	561	561
McFadden's (adjusted) pseudo R^2	0.165		0.112	
Reference Group	**2003**			
Percentage explained by:				
Characteristics	21.506			
Coefficients	78.494			

Coefficients are the results of a survey weighted logit regressions with clustering by schools. Marginal effects calculated as the average of the sample. All control variables are indicator variables except for "Parent church attendance" which is an index variable ranging from 0 to 365 indicating annual church visits, and "Year of residence in comuna" which is a continuos variable

The marginal effect of indicator variables is the discrete change from the base level. In the case of type of school the base is a municipal school, for educational level is less than high school, and for the rest of indicator variables are the discrete change from 0 to 1.

[a] Comunas are recognized neighborhoods in Santiago around which many municipal services are organized.

Standard errors in parenthesis. Standard errors of marginal effects were estimated by delta method.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Satisfaction, by Parent Education Level

	Less than High school			High School			College			Association by educational level	
	2003	2009	Diff.[a]	2003	2009	Diff.[a]	2003	2009	Diff.[a]	2003	2009
Evaluations own school											
Schools of their comuna	57%	42%	-15%	42%	20%	-23%***	34%	21%	-13%	Yes*	Yes***
Own school's evaluation	87%	79%	-8%*	89%	77%	-11%**	84%	68%	-16%	No	No
Principal's evaluation	85%	69%	-16%**	84%	70%	-14%	87%	61%	-26%***	No	No
Satisfaction own school dimensions											
Quality	70%	60%	-10%	71%	49%	-22%**	62%	51%	-11%	No	No
Values	81%	71%	-10%	88%	73%	-15%**	82%	74%	-9%	No	No
Coordinated work	71%	55%	-16%**	69%	52%	-17%***	59%	49%	-11%	No	No
Extracurricular activities	68%	56%	-13%	74%	47%	-27%***	53%	34%	-20%**	Yes**	Yes**
Discipline	64%	48%	-16%**	59%	46%	-13%	59%	45%	-14%	No	No
Respect	79%	72%	-6%	85%	69%	-16%**	84%	61%	-23%***	No	No
Opportunities for parents participation	54%	33%	-21%***	49%	28%	-21%**	44%	40%	-4%	No	No

[a]: To assess whether the means' differences are statistically different from each other we used a t-test adjusted by sample design;
[b]: To assess whether the results are independent by parent education within each year we applied the Pearson test corrected by sample design.
* significant at 10%, ** significant at 5%, *** significant at 1%
Source: Survey of Parents in Metropolitan Region of Santiago, Chile

Table 9: Satisfaction, by Chosen School Type

	Public			Private voucher			Private non-voucher			Association by school type	
	2003	2009	Diff.[a]	2003	2009	Diff.[a]	2003	2009	Diff.[a]	2003	2009
Evaluations own school											
Schools of their comuna	60%	41%	-19%**	44%	28%	-16%**	36%	15%	-21%**	Yes**	Yes*
Own school's evaluation	70%	66%	-4%	91%	76%	-15%***	87%	84%	-3%	Yes***	No
Principal's evaluation	72%	55%	-17%*	89%	69%	-20%***	85%	68%	-17%*	Yes**	No
Satisfaction own school dimensions											
Quality	49%	45%	-4%	74%	54%	-20%***	59%	58%	-1%	Yes**	No
Values	63%	57%	-6%	92%	74%	-18%***	71%	83%	12%	Yes***	Yes**
Coordinated work	48%	48%	1%	74%	54%	-21%***	57%	50%	-7%	Yes**	No
Extracurricular activities	49%	33%	-16%**	71%	49%	-22%***	62%	44%	-18%*	Yes**	Yes*
Respect	63%	55%	-8%	88%	69%	-19%***	78%	77%	-1%	Yes***	Yes*
Discipline	38%	30%	-8%	67%	47%	-20%***	57%	61%	4%	Yes***	Yes**
Opportunities for parents participation	38%	30%	-8%	53%	32%	-21%***	48%	38%	-10%	No	No

[a]: To assess whether the means' differences are statistically different from each other we used a t-test adjusted by sample design;
[b]: To assess whether the results are independent by school type within each year we applied the Pearson test corrected by sample design.
* significant at 10%, ** significant at 5%, *** significant at 1%
Source: Survey of Parents in Metropolitan Region of Santiago, Chile

Table 10: Evaluation of various dimensions, AME Logit Model

	Comuna's schools		Own school		Principal	
	2003	2009	2003	2009	2003	2009
	(1)	(2)	(3)	(4)	(5)	(6)
Chosen school is private voucher	-0.117	-0.0961	0.246***	0.144**	0.179***	0.198**
	(0.0924)	(0.0801)	(0.0563)	(0.0563)	(0.0601)	(0.0923)
Chosen school is private non-voucher	-0.0164	-0.183	0.267***	0.314***	0.161**	0.283**
	(0.123)	(0.115)	(0.0616)	(0.0768)	(0.0793)	(0.136)
Parent has completed high school	-0.123	-0.206***	-0.00309	0.00291	-0.0317	-0.0147
	(0.111)	(0.0677)	(0.0432)	(0.0546)	(0.0729)	(0.0831)
Parent has completed College	-0.180	-0.213**	-0.0397	-0.0643	0.00353	-0.119
	(0.129)	(0.0872)	(0.0618)	(0.0849)	(0.0402)	(0.0784)
Surveyed parent is female	-0.0777	-0.248**	0.106	0.0806	-0.00110	-0.0711
	(0.115)	(0.119)	(0.0758)	(0.0659)	(0.0737)	(0.0728)
Surveyed parent is employed	-0.0617	-0.0238	-0.0694*	-0.215***	-0.0298	-0.0157
	(0.101)	(0.0605)	(0.0416)	(0.0597)	(0.0450)	(0.0948)
Student walks to school	0.118	0.0460	0.0167	-0.100***	0.00886	0.109**
	(0.0788)	(0.0388)	(0.0474)	(0.0366)	(0.0498)	(0.0552)
Parent church attendance	0.0004	0.0002	-0.0001	0.0005	-0.0007**	0.0002
	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0005)
Years of residence in comuna	0.0003	-0.0032	0.0006	0.007***	0.0018	0.0004
	(0.0023)	(0.0028)	(0.0012)	(0.0024)	(0.0013)	(0.0024)
Sample size	486	520	495	549	471	480
McFadden's (adjusted) pseudo R^2	0.05	0.09	0.11	0.15	0.07	0.03
Non linear decomposition						
Percentage explained by:						
Characteristics	2.25		3.46		1.39	
Coefficients	97.75		96.54		98.61	

The estimations are based in survey weighted logit regressions with clustering by schools. Marginal effects calculated as the average of the sample. All control variables are indicator variables except for "Parent church attendance" which is an index variable ranging from 0 to 365 indicating annual church visits, and "Year of residence in comuna" which is a continuos variable
The marginal effect of indicator variables is the discrete change from the base level. In the case of type of school the base is a municipal school, for educational level is less than high school, and for the rest of indicator variables are the discrete change from 0 to 1.
[a] Comunas are recognized neighborhoods in Santiago around which many municipal services are organized.
Standard errors in parenthesis. Standard errors of marginal effects were estimated by delta method.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Satisfaction in various dimensions, AME Logit Model

	Quality		Values		Coordination		Extracurricular		Discipline		Respect		Participation	
	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009	2003	2009
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Chosen school is priv. voucher	0.241***	0.181**	0.292***	0.222***	0.313***	0.112**	0.267***	0.197**	0.327***	0.208***	0.246***	0.240***	0.182*	-0.00216
	(0.0623)	(0.0785)	(0.0627)	(0.0625)	(0.0703)	(0.0498)	(0.0782)	(0.0770)	(0.0778)	(0.0540)	(0.0808)	(0.0605)	(0.106)	(0.0548)
Chosen school is priv. non-voucher	0.188	0.336***	0.0892	0.357***	0.207*	0.153	0.343***	0.312**	0.283***	0.400***	0.171	0.439***	0.198	-0.0279
	(0.130)	(0.105)	(0.0957)	(0.0831)	(0.115)	(0.107)	(0.0759)	(0.132)	(0.0931)	(0.118)	(0.113)	(0.0789)	(0.139)	(0.0777)
Parent has completed high school	-0.0110	-0.112	0.063	-0.0066	-0.051	-0.045	0.042	-0.088	-0.082	-0.0588	0.0424	-0.0486	-0.0678	-0.0576
	(0.0820)	(0.0820)	(0.0388)	(0.0767)	(0.0680)	(0.0499)	(0.0771)	(0.0798)	(0.0744)	(0.0760)	(0.0504)	(0.0709)	(0.0873)	(0.0574)
Parent has completed College	-0.0404	-0.0801	0.0839*	0.0396	-0.142	0.000142	-0.220***	-0.229**	-0.0429	-0.0982	0.0572	-0.0960	-0.161	0.0666
	(0.0766)	(0.0661)	(0.0494)	(0.0680)	(0.102)	(0.0909)	(0.0661)	(0.0931)	(0.0783)	(0.0921)	(0.0739)	(0.102)	(0.113)	(0.0756)
Surveyed parent is female	0.0883	0.0337	0.0666	0.162**	0.0794	0.142*	0.0748	-0.0368	0.107	0.0161	-0.0835	0.0949	-0.199**	-0.0311
	(0.0847)	(0.0724)	(0.0834)	(0.0635)	(0.118)	(0.0822)	(0.114)	(0.0800)	(0.114)	(0.0718)	(0.0518)	(0.0651)	(0.100)	(0.0930)
Surveyed parent is employed	-0.103	-0.145***	0.05	-0.14***	0.0086	-0.191***	-0.0055	-0.0104	-0.0718	-0.0822	0.0071	-0.162***	-0.0895	0.0013
	(0.0711)	(0.0420)	(0.0481)	(0.0514)	(0.0699)	(0.0499)	(0.0476)	(0.0701)	(0.0657)	(0.0577)	(0.0515)	(0.0550)	(0.0808)	(0.0467)
Student walks to school	-0.0136	0.00176	0.0988**	-0.0294	-0.0292	-0.00958	0.0194	0.0436	0.0124	-0.0465	0.0760*	0.0410	-0.0842	-0.0344
	(0.0840)	(0.0617)	(0.0425)	(0.0556)	(0.0519)	(0.0609)	(0.0818)	(0.0636)	(0.0760)	(0.0640)	(0.0456)	(0.0685)	(0.0571)	(0.0452)
Parent church attendance	-0.00009	0.0003	0.0004	-0.00008	0.001	-0.0006	-0.0001	0.00007	0.0005	-0.0003	0.002	0.0007**	0.0001	-0.0003
	(0.0004)	(0.0004)	(0.0006)	(0.0003)	(0.001)	(0.0004)	(0.0004)	(0.0003)	(0.0006)	(0.0005)	(0.001)	(0.0003)	(0.0004)	(0.0004)
Years of residence in comuna	0.0045*	0.0045*	0.0021	0.0047*	0.0015	0.0022	0.0012	0.0041*	0.0025	0.0003	0.0006	0.0056**	0.0008	-0.0008
	(0.0024)	(0.0024)	(0.0014)	(0.0027)	(0.0019)	(0.0025)	(0.002)	(0.0025)	(0.0018)	(0.0025)	(0.0015)	(0.0026)	(0.002)	(0.0022)
N	514	558	512	558	500	539	481	540	516	559	514	558	507	546
McFadden's (adjusted) pseudo R^2	0.06	0.04	0.16	0.07	0.07	0.05	0.07	0.04	0.07	0.03	0.11	0.08	0.04	0.01
Non linear decomposition														
Percentage explained by:														
Characteristics	10.88		10.17		18.20		-7.99		-2.16		13.12		0.50	
Coefficients	89.12		89.83		81.80		107.99		102.16		86.88		99.50	

The estimations are based in survey weighted logit regressions with clustering by schools. Marginal effects calculated as the average of the sample. All control variables are indicator variables except for "Parent church attendance" which is an index variable ranging from 0 to 365 indicating annual church visits, and "Year of residence in comuna" which is a continuos variable
The marginal effect of indicator variables is the discrete change from the base level. In the case of type of school the base is a municipal school, for educational level is less than high school, and for the rest of indicator variables are the discrete change from 0 to 1.
[a] Comunas are recognized neighborhoods in Santiago around which many municipal services are organized.
Standard errors in parenthesis. Standard errors of marginal effects were estimated by delta method.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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