For-profit schooling in Chile: When ideology trumps evidence

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Introduction

There is a persistent debate on the comparative performance of for-profit and non-profit organizations. Researchers have developed a number of theories as to why non-profit organizations might outperform for-profit firms in mixed industries. One view is that for-profit firms have incentives to take advantage of customers by providing inferior services buyers cannot evaluate (Hausmann, 1987). Under these circumstances, economic theory predicts that non-profit organizations will come into existence to provide high quality services to poorly informed customers (Weisbrod, 1988). A second viewpoint is that non-profits are better positioned to provide under-satisfied demands, such as the provision of services to disadvantaged populations, than for-profit firms because they may rely on donations of money or volunteer time to finance the provision of these services, while for-profits must survive in the competitive marketplace (Rose-Ackerman, 1996).

These claimed advantages have not gone unchallenged. Critics argue that the ambition of profit fosters efficient decision making by for-profit firms. In contrast, they assert that non-profit institutions are insulated from competitive pressures and have little incentive to run their organizations efficiently. For instance, because non-profits cannot distribute profits to owners, critics maintain that their managers have less incentive to minimize costs and may, for example, pay themselves excessive salaries (Glaeser and Schleifer, 2001).

Other skeptics suggest that there are likely no systematic differences in the objectives of for-profit and non-profit suppliers. Non-profits may engage in profit making activities and, conversely, for-profit firms may have a deep commitment for the services they deliver. Mission driven firms may find the constraints placed on non-profit organizations too restrictive, and profit-maximizing firms may find it more advantageous to be non-profit, due to tax exemptions, for example (Weisbrod, 1998).

Empirical studies generally corroborate the theoretical predictions of higher quality in the non-profit sector. For instance, Lukesetich et al. (2000) show that non-profit nursing homes spend more per-patient on nursing care and less on administrative expenses than for-profit homes. Ford and Kasserman (2000) find that non-profit kidney dialysis clinics provide significantly longer treatment than for-profit dialysis

clinics. Similarly, non-profit hospitals provide more uncompensated care than for-profits (Schlesinger et al., 1987). In studies of prisons, Hart et al. (1997) find that for-profit prisons hire lower quality prison guards than non-profits. The empirical studies of day care centers also report systematic quality differences between non-profit and for-profit centers. Non-profits rank higher along schooling inputs such as class size and teacher experience, while for-profit centers generally provide lower quality services for similar fees (Morris and Helburn, 2000).

For-profit schooling is also a hotly debated issue in current educational policy reform discussions. Some assert that public schools are organized to serve bureaucratic needs rather than the goals derived from public interest (Chubb and Moe, 1990), while for-profit schools are goal oriented and forced to respond to parents (Chubb, 2001). Chubb (2001) also argues that for-profit schools have more discretion than non-profit schools in terms of choosing what they want to do to achieve the school's mission, which is driven by parents. In contrast, most non-profit schools are managed according to rules of the organization (often the Church), which determines the school's mission (e.g. Bryk et al., 1993).

Hess and Horn (2013) maintain that for-profits have more flexibility than public schools to differentiate teacher pay based on need and merit and dismiss low performing teachers, and they are also more likely to do so than non-profit schools. They argue that the search for profits drives these schools to focus on efficiency and cost-cutting, whereas public and non-profit schools are more hesitant to make unpopular and politically sensitive decisions. Advocates conclude that because of for-profit schools' greater freedom, fewer rules, and incentive to serve parents, they could be laboratories for change and experimentation in pedagogical innovation that improves learning and could provide examples for other schools (e.g. Hess and Horn, 2013; Chubb, 2001).

Skeptics have argued that schools should not differ significantly and that the differences across sectors will be mainly cosmetic. For example, Brown (1992) suggests that schools will offer similar curricula and educational models. He theorizes that schooling is an uncertain business and that parents are risk averse and look for schools that use well known approaches to education. Brown (1992) concludes that parents will drive schools across sectors to act like one another in their pedagogical approach. He surmises that schools will only differentiate themselvesfrom other schools through offering secondary services, such as foreign languages.

Other critics assert that for-profit schools have incentives to focus on easily observable characteristics - such as cleanliness, safety, and staffing levels – that have little to no relationship to learning (Grindal, 2014).Many criticshave also argued that given competition, for-profit schools will be diverted from the educational enterprise to such things as advertising and marketing (Lubiensky and Lubienski, 2013). In sum, skeptics are concerned that the focus on attracting customers will often lead for-profit schools to invest in dimensions that attract more parents rather

than in schooling inputs and processes that improve the quality of teaching and learning.

Much of the existing empirical research in education treats private schools as an aggregate category and very few studies have examined whether performance differs across for-profit, public, and non-profit schools. The evidence on this point is limited because there are so few schooling systems that provide public funding to for-profit schools. While different combinations of private and public provision (funding and management) are observed in many countries, most schools continue to be funded and operated primarily by the government (OECD, 2006), and non-profitstatus is usually required for private educational institutions (James,1993; Hess and Horn, 2013).

Researchers can gain insight into this debate by examining school systems where vouchers have been implemented on a large scale and where private (for-profit and non-profit) school supply has increased. Education in Chile occurs in a mixed market with 42 percent of students enrolled in public schools, 34 percent in for-profit voucher schools, 16 percent in non-profit (religious and secular) voucher schools, and 8 percent in private non-voucher schools. The issue of for-profit schooling was one of the factors that sparked some of the largest protests in Chilean history. In July of 2006, more than 600,000 students walked out of class and occupied hundreds of schools all over Chile, demanding that the government cease funding for-profit schools (ElMercurio, 2006). Between 2011 and 2013 university student protests rocked the country almost weekly calling for an end to for-profit schools (Elacqua, 2012).

The position taken by the students and others opposed to funding for-profits is the beliefthat for-profit schools cannot be trusted to place the interests of children ahead of profitability(e.g. OEI, 2007). Skeptics in Chile have countered that for-profit schools have stronger incentives to reducecosts, and more importantly, to innovate, leading to both higher quality and greater efficiencyin education (e.g. Tironi, 2006). Neither of these arguments, however, is based on any data inChile on the quality of education provided by the different types of public or private schools (for-profit or non-profit).

The goal of this chapter is to examine whether or not for-profit voucher schools are more or less effective, all else equal, than non-profit voucher schools in Chile. Using a highly detailed unique data set I've constructed from the administrative records of the Ministry of Education, I compare schooling inputs and student achievement in public schools, for-profit schools, and non-profit schools.The findings presented in this study demonstrate that, while differences are found across private voucher school types (for-profit and non-profit), the differences are not always consistent with theory or the positions on either side of the policy debate in Chile.

The remainder of the paper is organized as follows. The second section explores the politics of education reform in Chile. The third section reviews background on

Chile's school system and describes the school ownership types that will serve as the key analytical categories. In the fourth section I explore the differences between for-profit and non-profit schools in terms of schooling inputs, teacher experience and quality, and student achievement. The final section concludes and discusses policy implications.

2. The Politics of Education Reform

Some have argued that the most profound transformation ever experienced in the Chilean educational system was an idea conceived, designed, and implemented by the military government in eighteen months (Guari, 1998). During the 1980s, the military government enacted a sweeping education reform program (1973-1990). 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, the government altered the financing scheme of public and most private schools. Municipalities and private school owners that did not charge tuition started to receive vouchers on a per-student basis.[1] As a result, enrollment gains or losses began to have a impact on their budgets. Fee-charging private schools continued to operate without public funding.

The provision of education in Chile has become increasingly privatized since the voucher reforms were instituted. In 1981, 15 percent of Chilean K-12 students attended private schools that received some public subsidy, and another 7 percent attended more elite, unsubsidized private schools. Between 1981 and 1986 more than 1,000 new private voucher schools entered the education market and the private voucher enrollment rate increased from 15 percent to 25 percent. By 1990, over 31 percent of students attended private voucher schools.

Since the design and implementation of the voucher reforms occurred in a setting that did not permit political opposition, researchers, policymakers and the public in Chile were unable toexamine the many tradeoffs of school choice that have been an important part of education policy debates in other countries (Godwin and Kemerer, 2002). For instance, in the United States, the advent of school vouchers has generated movements among both advocates and opponents (Moe, 2001) and a large body of empirical findings that have fueled the public debate (Henig, 2008). Since the return of democracy in Chile in 1990, education reforms have focused on improving quality and equity through curricular reform, increased investment in teachers' salaries, textbooks, student meal programs, targeted academic programs, longer school days, and the provision of computers and the Internet in all schools (Cox, 2003). The center-left administration also introduced a teacher labor law that established centralized bargaining, a single pay structure of wages, and made it

[1]Chile's voucher formula includes adjustments for rural schools and high schools, but until very recently 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.

difficult to fire a public school teacher who is not performing adequately (OECD, 2004). The only significant modification of the voucher program was in 1994, when the Ministry instituted a financing scheme that allowed all private voucher schools to charge limited monthly tuition fees (Montt et al., 2006).

The education reforms of the 1990s were politically popular because they provided politicians with resources to distribute to constituencies (e.g. jobs in construction and textbook companies, children in school more hours a day which helps reduce child care expenses). They also imposed fewer costs and provided more benefits (jobs, job stability, improved working conditions and wages) for teachers, administrators, and bureaucrats. The national teachers' union was an advocate of these reforms.[2] The conservative political opposition was also receptive to the reforms because they did not challenge the voucher program and the decentralization of public schools.

Most experts agree that these investments increased coverage, especially for low-income children in high school[3] and preschool[4] improved the quality of school facilities, provided manychildren with the opportunity to spend more hours a day at school,[5] increased teachers salaries and the quality of applicants,[6] school construction, and increased parent satisfaction with the quality of their children's schools (Elacqua & Martinez, forthcoming). School and enrollment data also suggest a robust response to parental preferences for private schools. Between 1990 and 2006 the enrollment rate in private voucher schools increased from 31 percent to 44 percent of total enrollments. Most of these gains were at the expense of public school enrollments. Adding in the 7 percent of students in elite private non-voucher schools, leaves a majority of Chilean students in private schools.

Despite these positive outcomes, and a fourfold increase in spending in inflation adjustedterms between 1990 and 2006, there was no significant improvement in the average quality of learning.In 2006, student achievement in Chile was among the highest in Latin America,but still lagged significantly behind a number of emerging countries in Asia and Eastern Europe, as demonstratedby the poor results achieved on the Trends in International Mathematics and Science Study(TIMSS), the

[2]See Grindle (2004) for a comparative analysis of education reforms in several Latin American countries.

[3]Between 1990 and 2006 the percentage of 20 to 24 old adults from the lowest income quintile that had completed high school increased from 26 to 62 percent.

[4]While there have also been significant advances in pre-school coverage across socioeconomic groups, Chileis still lagging behind most industrialized and some developing countries. Michelle Bachelet –in her first run for president in 2005 –gave priority to this issue in her presidential campaign.

[5]Since 1997, over 75 percent of primary schools have adopted a full day school program.

[6]Between 1990 and 2006, Chilean teachers real salaries grew by almost 200 percent in real terms, school of education applicants increased by over 40 percent, and the average university entrance exam score of applicants increased by almost 20 percent (Vegas, 2007, Bruns and Luque, 2014).

Programme for International Student Assessment (PISA), and the InternationalCivic Education Study (CIVIC). National test scores were also stagnant between 1997 and 2006, andlarge test score gaps persisted among socioeconomic groups (e.g. Mizala & Romaguera, 2005). Schools were also highly stratified by socioeconomic status. Students attending private schools, on average, came from families thathave much higher incomes and that are headed by parents with substantially more schoolingthan students enrolled in public schools. By some accounts, Chile had one of the highest levels of school segregation in the world (e.g. Valenzuela et al. 2014)

These factors converged to motivate one of the largest protests in Chilean history that is widely known as "the march of the penguins" - in reference to the protesters' black and white school uniforms. The protests began in July 2006, less than three months after President Michelle Bachelet took office. More than 600,000 high school students walked out of class and occupied hundreds of schools all over Chile demanding the repeal of the L.O.C.E, the Pinochet-era constitutional education law enacted three days prior to the end of the military regime that promoted increased private school provision, making it possible for almost anyone (including for-profit companies) to open a school and receive government funding without having to conform to any standard of quality. The student movement had widespread popular support among university students, the teachers' union, the workers' union, and average citizens (El Mercurio, 2006).

President Bachelet and Congress responded to the students' demands bycreating a presidential advisory council with 81 members with the objective to develop a proposal for education reform. A few months later, Bachelet adopted many of the council´s recommendations and proposed legislation that would put an end to the L.O.C.E. and create new General Law of Education (LGE)which would redefine the balance between school and teacher autonomy and students' right to receive a high quality education. The LGE had bipartisan support and passed by a majority. The LGE effectively increased public and private voucher school regulation, introduced school accountability measures, banned all public and private voucher schools from using parental interviews and admissions tests to select and expel primary school students, introduced grade level reforms, facilitated lateral teacher entry, and increased standards to open a school and receive public funding.[7] The government also passed the weighted voucher law that increased the per-pupil voucher for disadvantaged students (Elacqua & Santos, 2012).

Most of these reformswere celebrated as successful by experts and supported cautiously by the student and social movements. Moreover, over the last few years, Chile began to show consistent improvement on national and international assessments. For instance, in a recent book, Hanushek, Peterson, and Woessman

[7]Prior to LGE, the only formal requirement to open a school in Chile was to have a high school diploma (Montt et al., 2006). The new law required school owners to have a university or vocational higher education degree.

(2013)estimated the learning gains between 1995 and 2009 for 49 countries. Chile ranked second among nations that significantly improved their educational standing Student achievement in Chile increased at an annual rate of 4 percent of a standard deviation, which translates over the 14-year study period into learning gains of greater than two years.[8]

The Sebastian Piñera administration passed a series of education reforms thatbuilt on the LGE regulatory framework. First, his governmentpassed legislation that created a new education quality assurance system, including the establishment of two agencies that would be responsible for evaluation and oversight: The Education Quality Agency and the Superintendency of Education. The Piñera administration also passed a reform that gave principals more flexibility to dismiss low performing teachers and increased incentives for high performing teachers working in disadvantaged schools (Bruns and Luque, 2014).

While these reforms were celebrated by experts and had bipartisan support in Congress, university students continued to take to the streets arguing that they did not go far enough to overhaul the market based system (e.g. Elacqua, 2012). One of theirmain objections was that for-profit schools were still allowed to compete with non-profit andpublic schools for students (The Guardian, 2012).

Michelle Bachelet made banning profit in education one of the cornerstones of her platform in her 2013 run for president. In May 2014, three months after she was inaugurated for a second term for president, the first primary and secondary education legislative initiative she sent to Congress proposed to ban school fees, school selection, and profit in all publicly funded schools. This reform, which is currently under Congressional review, has sparked a vigorous national debate. The goal of this chapter is to inform the debate byexamining differences in schooling inputs and outcomes across for-profit, non-profit, and public schools.

3. Private School Diversity in Chile

Prior to the voucher reforms in 1981, most subsidized private schools were non-profit (Aedo, 2000). When private subsidized schools began to receive the same per-pupil payment as the public schools, a number of mostly for-profit voucher schools entered the market. Table 1 shows how primary school students are distributed across school types. Public schools account for the majority (56 percent) of schools and less than half of enrollments (41 percent). For-profit voucher schools account for 30 percent of schools and 34 percent of enrollments. Non-profit voucher schools account for about 10 percent of schools and 17 percent of enrollments. Private non-voucher schools represent 5 percent of schools and 7 percent of enrollments.

[8] See Alves and Elacqua (2013) for an analysis of the social and education reforms that help explain the learning improvements in Brazil and Chile.

Table 1

For-profit and non-profit voucher schools in Chile are diverse in membership. Table 2 shows how primary school schools and students are distributed across for-profit and non-profit school types. For-profit networks, which represent about 20 percent of all for-profit schools, are probably those that best fit the description of for-profit school proponents (Chubb, 2001). They are often controlled by a group of off-site owners, insome cases with private shareholders who often have ties to other industries,[9] and are characterized by networks of schools.[10] Most for-profit networks are small in size. Less than 20 percent of for-profit franchises have more than 3 schools in their networks. Less than 5 percent have more than 5 schools in their network (Elacqua et al., 2011).

For-profit schools that belong to a network, which account for 6 percent of schools and 8 percent of enrollments, are quite different from for-profit one off schools, which account for about 80 percent of all for-profit schools and about one-fourth of total schools and enrollments in Chile. For-profit one off schools are small schools, suggesting that when these owners set out to open a school, they are probably looking to open a single school to provide services in the community. Survey evidence suggests that the majority (75 percent) of for-profit schoolowners are former teachers (Corvalan et al., 2008) who were often fired from the public schooling sector by the military government in the 1970s and 1980s. Compared to for-profit network school owners who likely calculate the private returns on opening a school compared to other investments, for-profit one off school owners are more likely to consider the opportunity cost of a foregone salary as a public school teacher when they set out to establish a school.

Non-profit voucher schools, including Catholic,[11] Protestant,[12] and secular organizations[13] are more likely to be depicted by a philosophical or religious mission rather than profit. These schools,which are often subsidized by the Church or philanthropists, often have access to donated facilities and teachers willing to work for below-market salaries, and thus are able to provide a range of services to

[9] Among the most arresting examples is "La Cuca", a well-known discotheque and bar owner, who also owns a network for-profit of schools in a middle class municipality in the capital. http://www.paula.cl/entrevista/la-cuca-pura-carne/

[10] While there is no official information on the background of school owners, some anecdotal evidence based on interviews with the for-profit school guild (CONACEP), suggests that a number of for-profit school owners are second generation. Their parents were former teachers who opened the schools in the 1980s. They often study majors such as business or engineering and take over the family schools and use their management skills to expand operations.

[11] Branches of the Catholic church that run schools include religious orders, parishes, Archdiocese, and religious foundations.

[12] Protestant churches include Methodist, Baptist, Seventh-Day Adventist, Anglican, Lutheran, and Presbyterian churches.

[13] Most of the secular non-profit schools are branches of foundations that were created for other specific tasks, such as rural development. Other foundations were established by companies to provide schooling for their employees´ children.

students whose costs exceed public funding and school fees. Most non-profit schools are also characterized by networks of campuses that are affiliated through religious organizations (Elacqua et al., 2014). Catholic schools account for about 72 percent of non-profit schools and 7 percent of all schools and 13 percent of total enrollments. Only about 4 percent of students in Chile are enrolled in Protestant and secular non-profit voucher schools.

Table 2 Here

The trends in the number of private schools in Chile´s voucher system from 1981 to 2012 by school type are shown in table 3. In 1981, the year the voucher program was enacted, about one-third of the schools were for-profit one-offs, one third were Catholic schools, and one-third were private schools that did not receive any public subsidies. There were only 83 for-profit voucher schools that belonged to a network in 1981. Over the period of 1981 to 1993, the total number of private voucher schools increased by over 100 percent. For-profit schools far outpaced growth rates of other private school types. For-profit one offs schools quickly became the dominant type of private school in Chile´s school system. The total number of for-profit one off schools increased by 216 percent and the total number of for-profit networks by 131 percent 12 years after the voucher reform was instituted. Religious voucher schools consolidated over the same time period yielding a more moderate growth of less than 100 percent in the number of schools. Non-voucher schools also continued to grow at a slower pace of 45 percent.

Over the period 1993 and 2012, the total number of for-profit schools increased by over 80 percent to 2,600 schools, and total enrollment in for-profit schools increased by 77 percent. For-profit one offs increased by two thirds. For-profit networks increased by almost 170 percent in this period reaching a total of almost 600 primary schools. The total number of public schools decreased by 15 percent and total enrollments in these schools decreased by 40 percent in the same period. Catholic schools have consolidated over the years yielding a moderate growth in the number of schools and enrollments. While other types of non-profit schools (Protestant and secular) have expanded, they continue to represent less than 5 percent of schools and enrollments.

Non-voucher schools declined by almost 30 percent in number during this period. This is likely due in part to the Asian crisis, which affected Chile in the late 1990s, and likely hindered the ability of middle and upper class families to pay high school fees in private elite schools. Studies suggest that many of the private non-voucher schools closed down and reopened as private voucher schools (Elacqua et al., 2014).

Table 3 Here

In sum, evidence from Chile´s national voucher program is very relevant for predictions about what to expect from the introduction of vouchers and education policies in different contexts. Small for-profit one off schools were the most

responsive to the voucher, suggesting that a universal voucher program may induce a flood of for-profit small teacher run schools to enter the market. For-profit networks have also increased rapidly in number in recent years. Publicly funded vouchers in Chile have also induced Catholic schools to enter the market, but at a much more moderate rate. The number and enrollments in public schools and elite private non-voucher schools have rapidly declined since the voucher was instituted.

4. Schooling inputs and outcomes

For-profit school advocates argue that for-profits have incentives to reduce costs and to innovate, leading to both higher quality and greater efficiency in education (Moe, 2001; Hess and Horn, 2013). Critics maintain that given asymmetric information in education, for-profit schools have incentives to cut quality in the process of cutting costs and maximizing profits (Epple and Romano, 1998; Levin, 2003).

In this section, I explore the differences in schooling inputs and outcomes across public, for-profit and non-profit school types. Table 4 provides information on the differences in schooling inputs. For-profit voucher schools have, on average, more studentsper school and per class than public schools and secular non-profit schools and smaller school and class sizes than non-profit religious schools. For-profit schools are also less likely to offeran extended day program than public and Catholic schools. Table 4 also shows that for-profit schools are more likely to hire lessexperienced and lower performing teachers (less likely to win the productivity award) than other school types. These results suggest that for-profits, on average, have a lower quality structural environment for learning than other school types.

Table 4 Here

Some advocates have argued that voucher programs provide opportunities for for-profit educational entrepreneurs to enter the market and respond to parental demand for specialized niche products (e.g. Hess and Horn, 2013). Villalobos and Salazar (2014) explored the differences in educational pedagogical projects across school types. They found that for-profit and public schools are more likely than other school types to offer more traditional projects that emphasize educational excellence. Non-profit schools are more likely to have religious missions and private elite non-voucher schools are more likely to declare being college preparatory institutions. Public schools are more likely to offer artistic and sports specialized curriculum than other school types.

Some researchers have suggested that private schools will compete in the educational marketplace through offering secondary services, such as foreign languages (e.g. Brown, 1992). However, some ethnographic research in Chile found that while private voucher schools adopt foreign language namestodifferentiate themselves from other schools, they do not necessarily offer more language

training(Espinola, 1993). Two examples of this are the Boston College network of for-profit schools located in Santiago[14] and the Mel Gibson School one off for-profit school in Valparaiso (Elacqua et al. 2006). Neither of these for-profit school organizations offers a bilingual curriculum.

In sum, for-profits, on average, have lower quality educational environment for learning than public and non-profit schools. For-profit schools are also more likely to offer more traditional academic educational projects than other school types. Some anecdotal evidence also suggests that these schools use more cosmetic devices (such as foreign names) to differentiate themselves from other schools.

Advocates may argue that while for-profits may invest less resources on schooling inputs and pedagogical strategies than public and non-profit schools, they may be more likely to combine their educational investments in a more efficient way and focus on generating higher learning outcomes (e.g. Hoxby, 2003). Many advocates have pointed out that for-profit schools have more flexibility in the use of resources to focus on improving outcomes than public schools (e.g. Hess and Horn, 2013). For example, while public schools in Chile must comply with the rigid teacher labor laws which makes dismissing ineffective teachers nearly impossible, for-profit schools can remove low performing teachers and recruit and pay higher salaries to high quality teachers. To gain insight into this issue, I explore differences student achievement across school types.

In this analysis, I use an empirical strategy for comparing public, for-profit and non-profit student test scores that will account for selection bias. The empirical model is estimated with student level data from Chile´s national standardized test (SIMCE), which assesses students in 4th, 8th, and 10th grade in Spanish, mathematics, history, and geography.In this chapter, I will examine eight-grade achievement in 2004 and fourth grade achievement in 2002 and 2006. Student test scores are complemented with parent questionnaires, which include socioeconomic and environmental information regarding the students, their families, their classmates, and their schools. In the interest of space, I will only present the results of the estimates.[15]

Tables 5-7 present the results of differences in test scores between public, for-profit and non-profit school types when a broad set of control variables and corrections for selection bias are made.[16]The table is divided into two panels. The top panel

[14] See www.bostoncollege.cl for information on the six schools in the Boston College network.

[15]See http://www.politicaspublicas.udp.cl/publicaciones/detalle.tpl?id=254 for a detailed description of thethe econometric methods, data, and explanatoryvariables used in this chapter.

[16]I acknowledge that much of the debate about the differences between public and private schools has revolved around statistical techniques that attempt to control for student background characteristics and for potential selection on unobserved variables (Vandenberghe and Robin, 2004). In this article, rather than developing a different empirical strategy to control for selection bias, my model builds on previous published work by McEwan (2001) that uses the same student level data in Chile. In this paper, I employ the two-staged Heckman (1979) correction. I assume choice is made between two types of schools: public and private voucher. I argue that it is unlikely that parents can

summarizes the results for Spanish, while the bottom presents the results for mathematics. The first row displays the unadjusted difference in test scores between non-profit, public, and for-profit schools, which is the omitted reference category. The subsequent rows present the differences after accounting for individual and peer attributes and selection bias. The first column displays the for-profit-non- profit school test score gap and the second column shows the for-profit-public school achievement gap.

The simple uncorrected estimates show that the Spanish and mathematics achievement of students that attend for-profit schools is substantially lower, on average, than that of non-profit school students and higher than that of public school students on the 4th (tables 5-6) and 8th grade (table 7) tests.
After controlling for student and peer attributes and selection bias, I still find a significant and positive, but small, non-profit school Spanish (0.08 standard deviations) and mathematics(approximately .06 standard deviations) effect on the 4th grade tests (tables 5-6) and slightly larger effects on both 8th grade tests (table 7). The corrected test score estimates also indicate that there is a small and significant difference in 4th grade Spanish and mathematics achievement between for-profit and public schools (.07) (tables 5-6). However, the difference between the for-profit and public schools on 8th grade Spanish and mathematics tests are not statistically significant after accounting for confounding factors (table 7).

Table 5 Here
Table 6 Here
Table 7 Here

These results provide evidence of the effectiveness of non-profit voucher schools, but no consistent and substantial evidence on the difference in quality between public and for-profit schools. However, for-profit schools and non-profit schools, as I discussed above, are diverse in membership. The data presented in table 2 show that 80 percent of for-profit schools are one offs, and survey research suggests that many are run by former teachers (Corvalan et al., 2008). In contrast, for-profit network schools, which account for about 20 percent of this sector, are often controlled by a group of off-site entrepreneurs that and are characterized by networks of campuses. In addition, non-profit schools are composed of Catholic, Protestant and secular schools with very different educational missions. It is also essential to separate Catholic schools from other schools because previous research has demonstrated that Catholic schools, all else equal, usually outperform public schools and other private schools (McEwan, 2001; Bryk et al., 1993). By doing so, we

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distinguish between for-profit school categories (independent and network) and Catholic schools and for-profit schools that use a Catholic religious curriculum. In a previous version of this paper, I applied the two-staged procedure developed by Lee (1983) for cases where choice is among more alternatives. The results, which are not reported here and are available upon request, do not change the substantial findings of my analysis.

avoid confounding the effect of attending a non-profit school with the effect of a Catholic school.

Here I examine whether some types of for-profit and non-profit schools are more effective than others. Tables 7-9 summarize the results separating for-profit and non-profit schools by ownership type. Unadjusted estimates suggest that students in for-profit one off schools (the omitted reference category) have higher Spanish and mathematics achievement than publicschool students and lower achievement than other Catholic and for-profit network voucher schools. For-profit students that attend schools that belong to a network score .06 to .13 standard deviation higher than for-profit one off students. Raw differences are even higher between Catholic and for-profit one off school students (.3 to .4 standard deviations). There is no significant unadjusted difference in Spanish or mathematic achievement between Protestant, secular, and for-profit one off schools.

After controlling for student and peer attributes and selection bias, I still find a significantand substantial positive for-profit network school (over 0.10 standard deviations), Catholicschool (over 0.12 standard deviations), and secular non-profit school (over .07 standard deviations)Spanish achievement effect. The corrected 4th grade test score estimates also indicate thatthere is a very small (less than .06) and often not a statistically significant difference betweenfor-profit one offs and public schools (tables 8-10). However, the corrected estimates also indicate that public school students outperform their for-profit one off school peers by 0.07 on the8th grade Spanish exam (table 9) and there is no significant difference in Spanish achievementbetween Protestant and for-profit one off schools, with the exception of 2002 4th gradescores which is negative and significant (.11). The results in tables 8-10 also demonstrate thatfor-profit network schools and Catholic schools have a considerable advantage in mathematics(over 0.12 standard deviations) over for-profit one off schools, once student and peer attributes and selection bias are controlled for. In addition, there is a substantial secular non-profitschool mathematics effect (.13) in 4th grade. In 8th grade the difference is not significant. Thecorrected test score estimates also indicate that there is a small and significant difference in4th grade mathematics achievement between for-profit one off and public schools (.04) in2006 (table 9) and in 8th grade (table 10). The difference is not statistically significant in 2002(table 8). There is also no significant difference in mathematic achievement between for-profitone offs and Protestant schools. Table 8 indicates that Protestant schools produce significantly lower (.2 standard deviations) mathematics test scores than for-profit off schools after accounting for confounding independent variables.

Table 8 Here
Table 9 Here
Table 10 Here

Are the magnitudes of these consistent Catholic and for-profit network effects substantial? Research in the United States has found that Catholic schools have an

effect size of less than .10 standard deviations (Neal, 2002), which some have argued is not of practical importance for public policy (Levin, 1998). I find that Catholic schools and for-profit schools that belong to a network have larger effect sizes, over .12 of a standard deviation. Finally, I find a lack of any consistent substantial difference between student achievement in public, Protestant, and for-profit one off schools.

5 Conclusion

There has been a raging policy debate in Chile on the performance of for-profit, public, and non-profit schools. Some argue that for-profit schools cannot be trusted to place the interest of students over profitability. Buried in this position is the belief that for-profits would cut quality in the process of cutting costs (OEI, 2007). Skeptics have countered that for-profit schools have incentives to reduce costs and to innovate, leading to both higher quality and greater efficiency in education (Tironi, 2006; Hoxby, 2003). Neither of these arguments, however, is based on any empirical evidence on the differential performance across school types.

To gain insight into this debate, I've examined the Chilean school system where vouchers have been implemented on a large scale and where for-profit and non-profit school supply has increased. This paper compares schooling inputs and academic achievement of fourth and eighth-grade studentsacross for-profit, non-profit, and public schools. I have also subdivided for-profit and non-profit schools by ownership type: for-profit one offs, for-profit networks, Catholic, Protestant, and secular non-profit voucher schools. What I find is a mixed story. First, I find that for-profit schools offer a lower quality learning environment than other school types. For instance, for-profits have larger class sizes than public schools and hire less experienced and lower performing teachers than all other school types. Researchers have also found that for-profits are less likely to offer alternative pedagogical approaches (e.g. artistic, religious and college preparatory programs) than other school types. Next I find that, controlling for individual and peer characteristics and selection bias, for-profit school students achieve slightly lower than comparable students in a non-profit school and slightly higher than similar fourth grade public school students. There is not a consistent difference in eighth-grade student achievement in for-profit and public schools. However, an average student in a for-profit one off school performs significantly lower than a similar student enrolled in a Catholic, secular, and for-profit network school. The results also show that there is not a consistent and statistically significant difference in student achievement between public and for-profit one off schools.

The Catholic school effect is consistent with previous research in the United States (Morgan,2001). Researchers have argued that Catholic schools foster an environment in which rigorousacademic work is pursued within a supportive and caring environment (Bryk et al., 1993). Thepositive for-profit network effect is also

consistent with previous research in Chile (Elacqua et al., 2012). Some of the reasons that may explain the for-profit network advantageinclude the benefits of scale of educational inputs (Chubb, 2001). In addition, some researchershave argued that being embedded in a larger organization reduces and facilitates the flow ofinformation (such as research on best practices) between the schools in a network (McMeekin,2003).An alternative explanation may be that high achieving for-profit schools may be more likely to establish networks (or to join a network) than low performing for-profit schools (Elacqua et al, 2012). The evidence on low-quality Protestant schools is also consistent with some research in the United States, which has found that these schools dedicate more of their resources for preparing its students for the Kingdomof Heaven than on academic activities (Peshkin, 1986).

From a policy perspective, perhaps the most interesting finding of this research is the variation of student achievement within both the for-profit and non-profit sectors. These findings suggest that policies oriented to eliminate for-profit schools and continue funding non-profit (religious and secular) schools, is unlikely to improve educational outcomes. However, the results also cast doubt on the argument that for-profit schools will increase innovation, educational diversity, and efficiency in schooling. For-profit schools have, on average, a lower quality environment for learning (e.g. they hire less experienced and lower performing teachers) and offer less diversity in their pedagogical projects than public and non-profit schools. Moreover, for-profit one-off schools, the largest private voucher school sector, perform significantly worse than most other non-profit and for-profit sub-sectors. Despite their significant management advantage over traditional public schools (e.g. flexibility to dismiss low performing teachers and pay higher salaries to effective teachers), they produce similar levels of achievement as public schools.

Some maycontend that, despite these results, parents continue to choose for-profit schools over public schools and that banning these school types would only reduce the diversity of options for parents in the marketplace. However, if for-profit schools are unable to deliver higher performance and more innovation with the same resources and more flexibility in management than public schools, others may counter that they should not continue to receive public funding. This in fact is currently the argument used by the Bachelet administration to substantiate their legislative proposal to ban profit in education in Chile.[17]

It is highly unlikely that the mixed research findings reported here will resolve the education policy debate in Chile. As some scholars and practitioners have pointed out, nuanced research findingsare usually much harder to interpret and less likely to influence policy and public understanding than straightforward ideological positions (Henig, 2008; Belfield and Levin, 2005). At aconference that explored the reasons why research rarely influences policy, David Driscoll, theCommissioner of Education of the state of Massachusetts, summarized the terms of this debate:

[17] See for example, http://www.eldinamo.cl/2014/05/22/eyzaguirre-defiende-reforma-en-educacion-calidad-no-es-compatible-con-el-lucro/

"The exact science of ideology always trumps the inexact science of research" (Driscoll, 2007).

References

Aedo, R. (2000). *La educacion privada en Chile: Un estudio historico-analitico desde el periodo colonial hasta 1990.* Santiago, Chile: RIL editors

Alves, F. and G. Elacqua (2013) Rising expectations in Brazil and Chile: The middle class demands higher quality public schooling. *Education Next*

Belfield, C. and H. M. Levin (2005) Vouchers and public policy: When ideology trumps Evidence. *American Journal of Education* August, Vol. 111 (4); pp. 548-567.

Benveniste, L., M. Carnoy, and R. Rothstein. (2003). *All else equal: Are public and private schools different?* New York, London: Routledge Falmer.

Brown, B. (1992) Why governments run schools. *Economics of Education Review*. Vol. 11(4); pp. 287-300.

Bruns, B. and L. Luque (2014) *Great teachers: How to raise student performance in Latin America and the Caribbean.* World Bank Group

Bryk, A. S., V. E. Lee, and P. B. Holly. (1993). *Catholic schools and the common good.* Cambridge, MA: Harvard University Press.

Chubb, J. and T. Moe (1990) *Politics, markets, and America's schools.* Washington D.C.: Brookings Institution Press

Chubb, J. E. (2001). The profit motive. The private can be public. Spring. *Education Next*. Spring. Vol 1(1).

Corvalan, J. G. Elacqua and F. Salazar (2008) *El sector particular subvencionado de la educacion chilena: descripcion, tipologizacion, analisis de su dinamica y percepciones frente a las nuevas regulaciones* Documento de trabajo. Ministerio de Educacion de Chile

Cox, C. (2003). *Politicas educacionales en el cambio del siglo: La reforma del sistema escolar chileno.* Santiago, Chile: Editorial Universitaria

Driscoll, D. (2007). *The politics of knowledge: Why research does (or does not) influence education policy.* American Enterprise Institute, Washington D.C. May Available at: http://www.aei.org/events/filter.all,eventID.1455/summary.asp

Elacqua, G. (2012).*Education: Chile´s students demand reform.*AmericasQuarterly. Winter Edition

Elacqua, G. M. Martinez, and H. Santos (forthcoming) Voucher policies and the response of for-profit and religious schools: Evidence from Chile *Handbook of International Development and Education*

Elacqua, G. M. Martinez, H. Santos, and P. Argote (2014) *La transición desde particular pagado a particular subvencionado.* Clave de Políticas Públicas. *Instituto de Políticas Públicas-UDP*

Elacqua, G. and H. Santos (2012).La toma de decisiones de un sostenedor: Análisis a partir de la ley SEP.*Gestión y Política PúblicaVol XXII Número 1* pp. 85-129.

Elacqua, G., D. Contreras, F. Salazar & H. Santos (2011). Theeffectiveness of privateschoolfranchises in Chile'snational voucher program*. School Effectiveness and School Improvement.*Fall Edition pp.1-42.

Elacqua, G. M. Martinez & H.Santos (2011).*Lucro y educación escolar.*Claves Políticas Públicas No 1. Instituto de Políticas Públicas-UDP

Elacqua, G. & M. Martinez (forthcoming) Libre elección de escuelas sin opciones: La experiencia en Chile. *La organización de mercado del sistema escolar chileno: Libertad, diversidad y desigualdad* en J. Corvalan, J.E. Huidobro y A. Carrasco (Eds) Santiago, Chile: Ediciones UC.

Elacqua, G., M. Schneider, &J. Buckley(2006). School choice in Chile: Is it class or the classroom? *Journal of Policy Analysis and Management* Vol. 25, Issue 3.pp. 577-601.

El Mercurio (2006, May 30). *Negociacion bajo presion.* Editorial. El Mercurio.

Epple, D. and R. Romano. (1998). Competition between private and public schools, vouchersand peer group effects, *American Economic Review* Vol. 62(1); pp. 33-62.

Espinola, V. (1993). The educational reform of the military regime in Chile: The system'sresponse to competition, choice, and market relations. Unpublished Ph.D. dissertation.

Ford J. and D. Kasserman. (2000) Ownership structure and the quality of medical care: Evidence from the dialysis industry. *Journal of Economic Behavior and Organization.* Vol. 43; pp. 279-293.

Glaeser, E. L. and A. Schleifer, (2001). Not-for-profit entrepreneurs, *Journal of Public Economics*, Elsevier, Vol. 81(1); pp. 99-115,

Godwin, K. and F. Kemerer (2002) *School choice tradeoffs: Liberty, equity, and diversity.* Austin, TX: University of Texas Press24

Grindal, T. (2014) Comparing the impact of attending a school-based and non-school-based preschool on young children´s cognitive skills, social behavior and approaches to learning: A propensity score analysis. *Early Childhood Research Quarterly*

Grindle, M. (2004) *Despite the odds: The contentious politics of education reform.* Princeton, N.J.:Princeton University Press

Guari, V. (1998) *School choice in Chile: Two decades of educational reform.* Pittsburgh: University of Pittsburgh Press

Hanushek, E., P. Peterson, and L. Woessman (2013) *Endangering prosperity: A global view of the American school.* Washington, DC: Brookings Press

Hart, O., A. Shleifer, and R.W. Vishny, (1997). The proper scope of government: Theory and an application to prisons, *Quarterly Journal of Economics*, Vol. 112; pp. 1126-1161.

Hausmann, H. (1987). Economic theories of nonprofit organization. In W. Powell (Ed.) *The nonprofit sector: A research handbook*, pp. 27-42. New Haven: Yale University Press.

Heckman, J. (1979). Sample selection bias as a specification error, Econometrica, Vol. 47; pp. 153-161

Hess, F. and M. Horn (2013) *Private enterprise and public education.* New York: Teachers College Press

Henig, J. (2008) *Spin cycle: How research is used in policy debates: The case of charter schools.* New York: Russell Sage Foundation

Hoxby, C. (2003). School choice and school productivity (or could school choice be a tide that lifts all boats?) In C. Hoxby (Ed.) *The Economics of school choice*. Chicago: University of Chicago and NBER press

James, E. (1993). Why do different countries choose a different public-private mix of educational services? *The Journal of Human Resources*. Vol. 28(3); pp. 571-592.

Lee, L.F. (1983). Generalized econometric models with selectivity, *Econometrica*, Vol. 51; pp. 507-512

Levin, H.M. (2003) The potential of for-profit schools for educational reform. In Kourilsky and W. B. Walstad (Eds.) *Social Entrepreneurship*, M. L. Senate Hall Academic Publishing, pp. 79-96.25

Lubiensky, C. and S. Lubienski (2013) *The public school advantage: Why public schools outperform private schools.* Chicago: University of Chicago Press

Lukesetich, W., M. Edwards, and T. Caroll. (2000). Organizational form and nursing home behavior. *Nonprofit and Voluntary Sector Quarterly*, Vol. 29; pp. 255-279.

McEwan, P. (2001). The effectiveness of public, Catholic, and non-religious private schools in Chile's voucher system. *Education Economics*, Vol. 9(2); pp. 103-128

McMeekin, R. (2003). Networks of schools. *Education Policy Analysis Archives*, Vol. 11(16).

Mizala, A. and P. Romaguera (2005). Calidad de la educacion chilena: una asignatura pendiente. Unpublished manuscript. CIEPLAN

Mizala, A. and P. Romaguera (2002) Evaluacion del desempeno e incentivos en la educacion Chilena. *Cuadernos de Economia* Vol. 118; pp. 353

Moe, T. (2001) *Schools, vouchers, and the American public.* Washington D.C. The BrookingsInstitution Press

Montt, P., G. Elacqua, P. Gonzalez, P. Pacheco, and D. Razynski (2006). *Hacia un sistema decentralizado solido y fuerte.* Santiago, Chile: Ministerio de Educacion. Serie Bicentenario.

Morgan, S. (2001) Counterfactuals, causal effect heterogeneity, and the Catholic school effecton learning. *Sociology of Education* Vol. 74; pp. 341-74.

Morris, J. and S. Helburn. (2000). Child care center quality differences: The role of profit status, client preferences, and trust. *Nonprofit and Voluntary Sector Quarterly*, Vol.29 (3), pp.377-399.26

OECD (2004). *Revision de politicas nacionales de educacion: Chile.* Paris: Organization for Economic Co-operation and Development (OECD).

OECD (2006). *Education at a glance.* Paris: Organization for Economic Co-operation and Development (OECD).

OEI (2007, April 24). *Chile: Lucro y calidad en la educacion.* Madrid, Spain: OEI.

Peshkin, A. (1986). *God's choice: The total world of a fundamentalist Christian school.* Chicago:University of Chicago Press.

Rose-Ackerman, S. (1996). Altruism, nonprofits, and economic theory. *Journal of Economic Literature*, Vol. 34(2); pp. 701-728.

Schlesinger, M., J. Bentkover, and D. Blumenthal. (1987). The privatization of health care andphysicians' perceptions of access to hospital services. *Millbank Quarterly*, Vol. 65; pp. 25-58.

The Guardian (2012, August 15) *Chile student protesters occupy high schools. Students want education system taken back from private sector and made affordable to poorer families.* World News.

Tironi, E. (2006, July 3). *Sobre lucro en la educacion*. Opinion, El Mercurio.

Valenzuela, J.P., C. Bellei, and D. de los Rios (2014) Socioeconomic school segregation in a market-oriented educational system. The case of Chile. *Journal of Education Policy*, 29(2), 217-241.

Vandenberghe V. and S. Robin (2004). Evaluating the effectiveness of private education across countries: a comparison of methods. *Labour economics* Vol. 11; pp. 487-506.

Vegas, E. (2007) Teacher labor markets in developing countries. *The Future of Children*. Vol. 17(1) Spring; pp. 219-232.

Villalobos C. and F. Salazar (2014) *Proyectos educativos en el sistema escolar chileno: una aproximación a las libertades de enseñanza y elección.* Informes para la política educativa no 2. CPCE. Universidad Diego Portales

Weisbrod, B. (1988). *The nonprofit economy.* Cambridge, MA: Harvard University Press.

Weisbrod, B. (1998). Institutional form and organizational behavior. In W. Powell and E.S.Clemens (Eds.), *Private action and the public good.* New Haven, CT: Yale University Press.

Tables

Table 1 Distribution of primary students across school types (2012)

	Percent of schools	Percent of enrollments
Public	55,7%	41,3%
For-profit voucher	29,9%	34,4%
Non-profit voucher	9,5%	17,0%
Private non-voucher	4,9%	7,2%
Total	100	100
Number of schools or students	8.682	1.962.575

Table 2 Distribution of primary students across school types (2012)

	Percent of schools	Percent of enrollments
Public	55,7%	41,3%
For-profit one off	24,0%	26,2%
For-profit network	5,9%	8,2%
Non-profit Catholic	6,8%	13,1%
Non-profit Protestant	1,1%	1,5%
Non-profit secular	1,6%	2,4%
Private non-voucher	4,9%	7,2%
Total	100	100
Number of schools or students	8.682	1.962.575

Table 3 The growth of for-profit schooling in chile: 1981-2012 (primary schools)

	1981	1993	**Percent change**	1993	2012	**Percent change**
For-profit one offf	397	1.257	**217%**	1.257	2.080	**66%**
For-profit network	83	192	**131%**	192	515	**168%**
Non-profit Catholic	277	530	**91%**	530	591	**12%**
Non-profit Protestant	35	64	**83%**	64	97	**52%**
Non-profit secular	34	59	**74%**	59	140	**137%**
Private non-voucher	404	588	**46%**	588	424	**-28%**
Total	1.230	2.690	**107%**	2.690	3.847	**43%**

Table 4 Schooling inputs across primary school types (2012)

	N	Average School Size	Average Class Size	Extended day Program (%)	Teacher experience (years)	Teacher productivity award (%)
Public	4.834	168	16	89%	20	22%
For-profit one off	2.080	249	23	59%	12	22%
For-profit network	515	314	27	62%	11	18%
Non-profit Catholic	591	512	35	82%	15	46%
Non-profit Protestant	97	334	31	53%	NA	30%
Non-profit secular	140	216	20	61%	NA	27%
Private non-voucher	424	334	21	N/A	N/A	N/A

Table 5 Differences between non-profit voucher, public, and private non-voucher schools, with average characteristics of for-profit voucher school students (4th grade 2002)

	Non-profit voucher	Public
SPANISH		
Unadjusted Difference	0.284	-0.268
	[0.025]	[0.019]
Difference adjusted for:		
Individual SES	0.170	-0.195
	[0.020]	[0.018]
Individual/peer SES	0.086	-0.069
	[0.018]	[0.016]
Individual/peer SES/selectivity	0.088	-0.068
	[0.018]	[0.016]
N	34,054	121,036
MATH		
Unadjusted Difference	0.226	-0.260
	[0.026]	[0.019]
Difference adjusted for:		
Individual SES	0.141	-0.183
	[0.020]	[0.018]
Individual/peer SES	0.063	-0.067
	[0.018]	[0.017]
Individual/peer SES/selectivity	0.066	-0.065
	[0.018]	[0.017]
N	34,104	121,263

Source: Ministry of Education and author's calculations
Notes: Standard errors in brackets. All regression results cluster standard errors at the school level.

Table 6 Differences between non-profit voucher, public, and private non-voucher schools, with average characteristics of for-profit voucher school students (4th grade 2006)

	Non-profit voucher	Public
SPANISH		
Unadjusted Difference	0.219	-0.271
	[0.020]	[0.014]
Difference adjusted for:		
Individual SES	0.112	-0.217
	[0.019]	[0.016]
Individual/peer SES	0.068	-0.088
	[0.018]	[0.019]
Individual/peer SES/selectivity	0.070	-0.081
	[0.018]	[0.019]
N	36,020	109,866
MATH		
Unadjusted Difference	0.197	-0.314
	[0.023]	[0.016]
Difference adjusted for:		
Individual SES	0.113	-0.224
	[0.020]	[0.018]
Individual/peer SES	0.061	-0.087
	[0.020]	[0.021]
Individual/peer SES/selectivity	0.063	-0.076
	[0.020]	[0.021]
N	36,091	110,154

Source: Ministry of Education and author's calculations
Notes: Standard errors in brackets. All regression results cluster standard errors at the school level. Reference category: "For-profit voucher". For-profit Spanish N= 60,587; For-profit Math N = 68,709

Table 7 Differences between non-profit voucher, public, and private non-voucher schools, with average characteristics of for-profit voucher school students (8th grade 2004)

	Non-profit voucher	Public
SPANISH		
Unadjusted Difference	0.265	-0.273
	[0.024]	[0.020]
Difference adjusted for:		
Individual SES	0.147	-0.098
	[0.019]	[0.032]
Individual/peer SES	0.194	0.034
	[0.019]	[0.038]
Individual/peer SES/selectivity	0.103	0.032
	[0.019]	[0.037]
N	37,468	138,819
MATH		
Unadjusted Difference	0.238	-0.279
	[0.028]	[0.023]
Difference adjusted for:		
Individual SES	0.140	-0.119
	[0.023]	[0.038]
Individual/peer SES	0.096	0.032
	[0.022]	[0.047]
Individual/peer SES/selectivity	0.095	0.029
	[0.022]	[0.046]
N	37,620	139,644

Source: Ministry of Education and author's calculations
Notes: Standard errors in brackets. All regression results cluster standard errors at the school level. Reference category: "For-profit voucher". For-profit Spanish N= 68,514 ; For-profit Math N = 60,983

Table 8: Differences between for-profit franchise, Catholic, Protestant, Non-sectarian, Public, and non-voucher schools, with average characteristics of for-profit independent school students (4th grade 2002)

	For-profit franchise	Catholic	Protestant	Secular	Public
SPANISH					
Unadjusted Difference	0.128	0.406	0.062	0.015	-0.233
	[0.040]	[0.026]	[0.064]	[0.069]	[0.020]
Difference adjusted for:					
Individual SES	0.101	0.283	-0.049	0.093	-0.154
	[0.028]	[0.021]	[0.047]	[0.052]	[0.018]
Individual/peer SES	0.115	0.172	-0.103	0.071	-0.027
	[0.024]	[0.021]	[0.040]	[0.041]	[0.016]
Individual/peer SES/selectivity	0.115	0.171	-0.116	0.065	-0.027
	[0.024]	[0.021]	[0.039]	[0.042]	[0.016]
N	15,116	26,278	3,254	4,522	121,036
MATH					
Unadjusted Difference	0.176	0.355	0.010	0.010	-0.212
	[0.041]	[0.027]	[0.058]	[0.066]	[0.019]
Difference adjusted for:					
Individual SES	0.129	0.254	-0.136	0.150	-0.130
	[0.029]	[0.021]	[0.038]	[0.047]	[0.018]
Individual/peer SES	0.143	0.150	-0.197	0.130	-0.014
	[0.026]	[0.021]	[0.039]	[0.044]	[0.016]
Individual/peer SES/selectivity	0.145	0.149	-0.199	0.124	-0.013
	[0.027]	[0.021]	[0.038]	[0.046]	[0.016]
N	15,127	26,313	3,268	4,523	121,263

Source: Ministry of Education and author's calculations
Notes: Standard errors in brackets. All regression results cluster standard errors at the school level.
Reference category: "For-profit voucher independent".
For-profit independent Spanish N= 39,540 ; For-profit independent Math N = 39,596

Table 9: Differences between for-profit franchise, Catholic, Protestant, Non-sectarian, Public, and non-voucher schools, with average characteristics of for-profit independent school students (4th grade 2006)

	For-profit franchise	Catholic	Protestant	Secular	Public
SPANISH					
Unadjusted Difference	0.055	0.282	-0.014	0.109	-0.258
	[0.029]	[0.022]	[0.048]	[0.057]	[0.015]
Difference adjusted for:					
Individual SES	0.071	0.175	-0.021	0.094	-0.195
	[0.024]	[0.021]	[0.053]	[0.054]	[0.017]
Individual/peer SES	0.086	0.116	-0.041	0.109	-0.060
	[0.024]	[0.021]	[0.046]	[0.051]	[0.020]
Individual/peer SES/selectivity	0.084	0.115	-0.049	0.109	-0.059
	[0.023]	[0.021]	[0.048]	[0.050]	[0.020]
N	15,620	28,089	3,408	4,523	109,866
MATH					
Unadjusted Difference	0.077	0.273	-0.044	0.057	-0.297
	[0.041]	[0.027]	[0.058]	[0.066]	[0.019]
Difference adjusted for:					
Individual SES	0.086	0.186	-0.046	0.108	-0.200
	[0.026]	[0.022]	[0.045]	[0.063]	[0.018]
Individual/peer SES	0.102	0.115	-0.067	0.127	-0.056
	[0.026]	[0.022]	[0.041]	[0.057]	[0.022]
Individual/peer SES/selectivity	0.100	0.115	-0.075	0.126	-0.049
	[0.026]	[0.022]	[0.043]	[0.057]	[0.023]
N	15,651	28,131	3,419	4,541	110,154

Source: Ministry of Education and author's calculations
Notes: Standard errors in brackets. All regression results cluster standard errors at the school level.
Reference category: "For-profit voucher independent".
For-profit independent Spanish N= 52,894; For-profit independent Math N = 53,058

Table 10: Differences between for-profit franchise, Catholic, Protestant, Non-sectarian, Public, and non-voucher schools, with average characteristics of for-profit independent school students (8th grade 2004)

	For-profit franchise	Catholic	Protestant	Secular	Public
SPANISH					
Unadjusted Difference	0.071	0.377	-0.046	-0.065	-0.253
	[0.036]	[0.026]	[0.059]	[0.060]	[0.021]
Difference adjusted for:					
Individual SES	0.093	0.234	0.013	-0.035	-0.068
	[0.023]	[0.023]	[0.043]	[0.039]	[0.031]
Individual/peer SES	0.099	0.176	-0.003	-0.009	0.072
	[0.022]	[0.023]	[0.039]	[0.040]	[0.039]
Individual/peer SES/selectivity	0.102	0.179	0.005	-0.015	0.069
	[0.022]	[0.023]	[0.040]	[0.043]	[0.037]
N	17,269	28,935	3,419	5,114	138,819
MATH					
Unadjusted Difference	0.096	0.359	-0.025	0.060	-0.251
	[0.041]	[0.027]	[0.058]	[0.066]	[0.019]
Difference adjusted for:					
Individual SES	0.121	0.244	-0.064	-0.016	-0.082
	[0.029]	[0.027]	[0.042]	[0.050]	[0.037]
Individual/peer SES	0.127	0.180	-0.076	-0.001	-0.076
	[0.028]	[0.028]	[0.045]	[0.051]	[0.048]
Individual/peer SES/selectivity	0.139	0.182	-0.076	-0.002	-0.074
	[0.028]	[0.028]	[0.046]	[0.053]	[0.046]
N	17,376	29,046	3,437	5,137	139,644

Source: Ministry of Education and author's calculations
Notes: Standard errors in brackets. All regression results cluster standard errors at the school level.
Reference category: "For-profit voucher independent".
For-profit independent Spanish N= 43,318; For-profit independent Math N = 43,607