

DOES PRIVATIZATION IMPROVE EDUCATION? THE CASE OF CHILE'S NATIONAL VOUCHER PLAN

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The Framework for Assessing Privatization

The push to expand public funding for private education—in the form of vouchers or charter schools—is based on several key claims derived from theories of how an education market should function. Empirical evidence for or against these claims has been scarce. Yet thanks to a number of recent studies in the United States and in other countries, particularly Chile, we now know a lot more about educational markets—hence have much of the information we need to judge whether the claims are valid. The results of these studies suggest that, despite claims by proponents, markets in education improve academic performance little if at all. Neither do they provide significantly better education for the group that needs it most—low-income students. The results also suggest that successful privately-run schools are better at attracting relatively low cost students and at raising revenue than increasing educational productivity.

Voucher advocates have consistently claimed that because public education is a government monopoly it inherently denies consumers free choice in their children's education (Friedman, 1955; 1962). This leaves them worse off than they would be under competitive conditions, for two reasons: many consumers are less than optimally satisfied since they would choose an educational alternative if they could, and schools are not compelled to produce as much output as schools would (for the same cost) if they faced

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competition. Providing vouchers to students would allegedly solve both of these problems. Vouchers (or their cousins, privately-run charter schools) would induce private education providers to compete for public school students, giving consumers educational opportunities not previously available and simultaneously forcing poorly-performing public schools to improve or lose students.

Friedman's analysis suggested that voucher schemes would improve the "welfare" that consumers received from education through greater choice and increased competition among education providers. Friedman has also consistently argued that private providers would supply the same quality schooling at a lower price than the public sector. In addition, other voucher advocates have claimed that private schools are also more effective, able to deliver higher educational achievement than public schools without spending more per pupil (Chubb and Moe, 1990).

Some of these claims have been tested in small-scale settings in the United States, but despite some positive aspects of small-scale, quasi-experimental studies, they also have serious limitations. They tell us little about the supply response of private education to vouchers, nothing about the potential impact of competition on the performance of students in public schools, nothing about whether private schools would produce produce outcomes at lower cost than public schools.²

Our premise in this paper is that we can gain insights into these issues by examining school systems where vouchers have been implemented on a large scale, and where private school supply has increased. Chile is probably the single best example,

² Derek Neal concludes in his review of Catholic school effectiveness that "...we cannot confidently expect positive outcomes for [voucher] program participants if the program is large in scale. . . .Large school voucher programs would likely mean the expansion of many existing private schools and the entry of many new private schools. How would this expansion and entry affect the quality of private schools or the

worldwide, to study the effects of vouchers. Influenced by Milton Friedman's proposal,³ Chile's military government transferred responsibility for public school management from the national Ministry of Education to local municipalities in 1980 and began financing public and most private schools with vouchers.⁴ Each school's revenues were henceforth determined on a month-to-month basis by total enrollments and a government-determined voucher. Teachers lost their status as civil servants, reverting to municipal contracts, and school buildings and land were signed over to municipal control. Initial transfers proceeded rapidly, encouraged by financial incentives. By 1982 most public schools were operated by municipalities, and the number of private schools was growing rapidly.

Education Reform in Chile

The Military Regime, 1973-1980. At the time of the military coup d'état in 1973, Chile's education system was one of the most developed in Latin America. It had achieved near-universal enrollment in primary education, a feat that still eludes much of Latin America (Castaneda, 1992; Schiefelbein, 1991). A *dirigiste* Ministry of Education assumed exclusive responsibility for administering the public schools. Even so, important numbers of private schools operated, about half of these under the auspices of the Catholic Church (Espinola, 1993). Following a long tradition of public support of private education, many received partial subsidies from the national government that covered about 30 percent of costs in 1980 (Larranaga, 1995).

quality of remaining public schools? We do not know, and available data shed little light on this question" (1998, p. 84).

³ Most Chilean economic and social policy during the military government was deeply influenced by the Chicago School of economics (Valdes, 1995).

Upon assuming power in 1973, the military government disbanded the teachers union and fired teachers with leftist views (Parry, 1997a; 1997b). It also initiated a massive administrative reorganization, dividing the country into 13 regions, and the latter into provinces and over 300 municipalities. At each level the President appointed governors and mayors, drawn mainly from the ranks of the military (Stewart & Ranis, 1994). During the 1970s the Ministry of Education, in addition to other ministries, devolved some powers to Regional Ministry Secretariats (SEREMIs) which were charged with administrative and supervisory duties formerly performed by the central ministry. Despite the apparent move towards decentralization, the system often functioned as a military chain of command, organized to implement central government directives (Parry, 1997a; 1997b; Stewart & Ranis, 1994). Mayors of municipalities would not be elected democratically until 1992.

The Educational Reform, 1980-1990. In 1980 the military government initiated a sweeping reform. It first transferred responsibility for public school management from the Ministry of Education to local municipalities.⁵ Teachers lost their status as civil servants, reverting to municipal contracts, and schools buildings and land were signed over to municipal control.⁶ Initial transfers proceeded rapidly, encouraged by financial

⁴ The following section draws on the work of other authors who have described the Chilean reforms. See especially Gauri (1998), Jofre (1988), and Parry (1997a; 1997b).

⁵ Once transferred to municipalities, schools were placed under the control of one of two kinds of institutions. Most opted to manage their schools with a *Departamento de Administración de la Educación Municipal* (DAEM). DAEMs exist under the larger umbrella of the municipal bureaucracy and, as such, are governed by municipal rules. Corporations are non-profit organizations that are not subject to direct mayoral control, though the mayor does preside over a governing board. Their operations are generally subject to fewer regulations. In contrast to DAEMs, the corporation head is not required to be a teacher and corporation employees are not subjected to municipal rules regarding the hiring and remuneration of municipal employees.

⁶ Gauri (1998) and Parry (1997a) describe how property and equipment were leased at no cost to municipalities for 99 years.

incentives, and by 1982, around 84 percent of schools were operated by municipalities.⁷ The process was interrupted by economic crisis in 1982 when the central government was unable to cover the costs of transfers, though all schools were transferred by 1987 (Jofre, 1988).

As schools were transferred to municipalities, public teachers were offered severance pay and became municipal rather than national employees (Castañeda, 1992). Instead of conforming to the national *Escala Única de Remuneraciones*, their wages and working conditions were henceforth governed by the more flexible *Código de Trabajo* (the latter was already applicable to most Chilean workers). Teachers lost guarantees of job security, the right to salary during vacations, standard wage scales, a 30 hour work-week, and the right to collectively bargain (Rojas, 1998). Teachers in private schools also lost some legal protections, including minimum wage guarantees and a system of annual salary adjustments.

Coupled with decentralization, the government drastically altered how public and most private schools were financed. Prior to 1980, as in much of Latin America, school budgets were largely determined by the need to sustain an existing plant of teachers and facilities. If budgets adjusted in response to the level of student enrollments, they only did so at a sluggish pace. Many private schools were already being subsidized by the government before 1980, meeting the rest of their costs with tuition payments and Church support—about 14 percent of students attended mainly Catholic, subsidized schools and another 6 percent, high-cost, non-subsidized private schools. Under the reform, the Ministry of Education began disbursing monthly payments to municipalities based on a

⁷ Municipalities received an overhead grant of three to five percent on total municipal wages and salaries as an inducement to begin administering schools (Parry, 1997a; Winkler & Rounds, 1996).

fixed voucher multiplied by the number of students enrolled in their schools; private schools received equivalent per-student payments if they did not charge tuition. Thus, payments to public or private schools began fluctuating in direct proportion to student enrollments.

The law established a base voucher level, which varies according the level of education and the location of the school.⁸ Though the real value of the voucher was originally intended to keep pace with inflation, it was de-indexed following the economic crisis of the early 1980s. Over the course of the 1980s, as copper prices fell, the real value of the per-pupil voucher declined precipitously, reaching its lowest point in 1988 (Figure 1). It rebounded thereafter with improved economic growth and has continued to rise since.

The voucher plan precipitated a massive redistribution of enrollment across private and public schools. At the beginning of decade, around 15 percent of students were enrolled in private voucher schools, and almost 80 percent in public schools. By 1996 around 34 percent of enrollments were in private voucher schools. This growth occurred mostly at the expense of public schools (see Figure 2). Throughout this period, between five and nine percent of students private enrolled in elite private schools that charged tuition.

Return to Democracy, 1990. The military ceded power to a democratic government in 1990. The form and function of Chile's voucher system were largely maintained, although new policies were grafted onto the existing system. The government focused on

⁸ Chilean law specifies a factor by which the base voucher is adjusted for students at every grade level. Furthermore, selected municipalities receive ad-hoc "zone assignments" to compensate for high poverty or isolation. Since 1987, rural schools within municipalities have received upward adjustments. For details, see Parry (1997a).

improving the quality of poor primary schools through direct resource investments. The “900 Schools Program,” referred to as P-900, was targeted at high-poverty and low-achieving schools (Garcia-Huidobro, 1994). Classrooms received a package of basic teaching materials and infrastructure improvements, while teachers received additional in-service training. Funds were also provided to train and employ local secondary graduates as tutors for the lowest achieving students. Eventually, P-900 expanded to include about 2,300 schools. In 1992, the Program to Improve the Quality and Equity of Pre-primary and Primary Education (MECE) was initiated with World Bank financing. More ambitious in scope than P-900, it sought to endow all publicly-funded schools with textbooks, libraries, and some infrastructure improvements (Cox, 1997).

About 43 percent of Chilean children now attend private primary (K-8) schools, all but 8 percent of those, private voucher schools. Private voucher schools are both religious (almost all Catholic) and, approximately two thirds, for profit. For profit schools account for much of the 23 percentage point growth of private enrollment after 1980. Fifty-seven percent of primary pupils still attend municipally run public schools also largely financed by vouchers. This figure is considerably down from the 80 percent who attended public primary schools in 1980. However, the proportion of pupils attending the different types of schools have remained relatively stable since 1990, when Chile replaced the military dictatorship that implemented the voucher plan with a democratically elected government. It was in 1990 that the Chilean government began a concerted effort to improve all low performing schools, both public and private voucher (Cox, 1997).

The return to democracy in 1990 brought renewed political pressures from teachers seeking improved wages and working conditions. Negotiation between the government and teachers resulted in the passage of the 1991 *Estatuto Docente*, a national law that subjected the teacher labor market—particularly for public school teachers—to additional regulation (Rojas, 1998). Wage floors were set for teachers with various levels of experience and training; these minimum wages were legislated to vary in lockstep with the voucher’s value. Limits on hiring and firing of public teachers were also introduced. Public school teachers could either be hired as tenured or contracted teachers.⁹ Tenured teachers were to be hired through public contests in each municipality and severe restrictions were placed on their firing or reassignment. Contracted teachers had fewer restrictions placed on their hiring and firing, but could account for no more than 20 percent of a municipality’s teacher workforce. The contracts of private teachers were still governed by the *Código de Trabajo*, which permitted significantly more flexibility in hiring and firing.

Assessing Voucher Plans

The Chilean voucher plan was supposed to improve Chilean education and make Chilean parents feel better off because they had a wide choice of where to send their children to school, including the option of private education. Before assessing Chile’s voucher plan, we need to be clear on what vouchers are supposed to have accomplished.

Choice. Voucher proponents offer the empirical evidence that parents who send their children to voucher or charter schools are “more satisfied” than when their children were in their local public school. But who takes advantage of choice and what the factors

⁹ Chilean Spanish makes the distinction between *titulares* and *contratados*.

influencing choice (revealed preference) are also important to understanding consumer “satisfaction.” Voucher and charter plans do not only provide increased choice for consumers. Many privately run schools also have a choice of students. The most desirable schools from a consumers’ point of view may be those that have the longest waiting lists, hence the greatest opportunity to exercise choice. These are the schools that are able to deliver the greatest peer effect, one of the few elements of educational quality that parents can recognize.¹⁰ If the level of student performance is crucial to schools’ attractiveness to parents, vouchers and charter schools will have enormous incentive to be selective, no matter what constraints, such as lotteries, are placed on them. Does this affect overall consumer satisfaction?

Competition. A fundamental benefit of privatization is the alleged gain in effectiveness and efficiency in public education resulting from competition with alternative providers of educational services. Testing for the effect of competition has been elusive. Private schools are more likely to locate in areas with more educated parents, who have more income and whose children are, on average, easier to bring to high levels of achievement. Private schools may also be more likely to locate in areas where public schools have lower than “expected” student performance. The potential positive effect of competition (a higher density of private schools) on academic

¹⁰ The current array of public school choice arrangements in the United States and other countries provides ample evidence for the fact that parents who place high value on education generally seek more over less selective situations, giving schools (even some public schools) considerable options to be selective. The most general form of selectivity is real estate prices and real estate taxes, determining who lives in one school district or another. Magnet (selective) schools within a district have served to provide a different kind of public choice, again based on choice by parents *and* schools. New York City has long had specialized, selective public high schools (entry by test or audition only), such as Bronx Science, Stuyvesant, and Music and Art (now called Laguardia). In almost all other countries, parents often seek to gain entry into “better” public schools outside their neighborhoods. These generally have waiting lists, and exert choice over incoming students through examinations, interviews, and willingness by the parents to donate financially to the school.

achievement in public schools can be confounded the simultaneity of private schools responses to lower public school scores or higher parent income. A third problem is that it is difficult to separate positive competition effects from negative effects on public school student performance due to “cream-skimming.” education. mayof a higher concentration of private schools for these reasons. In the United States, the issue is further complicated by the dominance of religious education in private alternatives. Even theoretically, competition from religious schools should not necessarily induce better academic performance from public schools if they perceived such private competitors as catering to a different market niche, namely parents seeking a religious environment.

Academic Efficiency. Empirical evidence of improved student outcomes under voucher and charter plans—specifically student performance in privately run schools—is important to the argument that they make consumers better off. The gain for low-income students is especially crucial given current privatization politics. Do students in private schools do better academically than in public? The main obstacle to showing whether this is true or not is selection bias. Ideally, we would like to know whether a student placed randomly in a privately or publicly managed school spending the same amount of resources per student would do better academically. Experimental data are best suited for such estimates, and some are available, but even they have selection bias problems. Further, we need to understand whether there exists a logic of greater private school efficiency, as implicitly claimed by some analysts (for example, Chubb and Moe, 1990; Bryk, Lee, and Holland, 1993), and, if so, the source of such efficiency.

Equity Effects. To the extent that a society values educational equity, we want to know whether vouchers and charters would alter the present distribution of access to

educational quality. The theoretical stream of the voucher movement puts its stock in “the rising tide lifts all boats” argument, claiming that educational efficiency gains would be large enough to raise consumer welfare among all groups. For political reasons, most voucher/charter proponents now argue that the greatest need for vouchers and charter schools is among low-income groups, for whom choice is most limited. Even with limited vouchers and charters, they could produce greater inequality of access to educational quality. Yet society may accept greater inequality as the price of improving academic performance for some, if that gain is large enough. The question, then, is the size of the inequality effect and the size of the potential gain for the winners.

Lessons from Chile

The Chilean data provide important insights into a privatized choice reality. Chile’s reforms encouraged a rapid growth in private school enrollment in the 1980s that was driven by an expansion of non-religious and profit maximizing voucher schools. Our estimates using extensive data on test scores in the 1980s and 1990s show that, on average, this type of privately-run school is marginally less effective than municipal schools in producing Spanish and mathematics achievement in the fourth grade (or, at best, similarly effective). Further results suggest that non-religious private voucher schools are even less effective than municipal schools when they enroll lower-SES pupils or are located outside of the capital. Some evidence suggested that the gap is explained by different resources in private schools, such as a greater percentage of teachers with short-term contracts (McEwan and Carnoy, 1999a)..

Although they produce somewhat lower test scores, non-religious private schools also cost about 13-17 percent less than public schools once outputs and student background are held constant (the gap may be slightly larger in Santiago). Direct evidence suggests that a rather small portion of the difference is due to some exogenous constraints on resource allocation such as the number of teacher contract hours and class size. Indirect evidence suggests that the difference is probably attributable to other constraints—externally imposed on municipal schools by the regulatory environment—such as lower private sector wages and increased private sector flexibility in managing infrastructure investments. Our evidence cannot rule out the possibility that different regulations on public schools (such as less restrictive teacher legislation) could alter relative efficiency, quite independently of a voucher plan.

In contrast to non-religious voucher schools, Catholic schools are more effective than public schools at producing achievement for similar students. Catholic schools spend more per pupil than public schools (they charge higher tuition, on average, and have more expensive, largely donated facilities), but because they apparently “add” more academic value, are about as cost-effective in the production of achievement.

These results are inconsistent with advocates’ claims that, on the whole, privately managed voucher schools produce significantly higher achievement than public schools for pupils with similar socioeconomic backgrounds. Nevertheless, a large category of private schools is more cost-efficient than publicly run schools. Another category, Catholic voucher schools, is able to achieve higher test scores for similar students but only by spending more. Such results deliver a mixed message, suggesting that more money may be needed to produce higher student achievement even in private schools, but

that private schooling (or deregulation) may save money. Although it would be difficult to argue for a strategy that reduces costs per student at the expense of student achievement, poor countries with limited resources may find vouchers to be attractive. At the very least, cost savings from voucher programs could be re-directed to more traditional efforts at compensatory education for low-achieving students.¹¹ However, it would be naïve to assume that a struggling democracy could—or should—implement a voucher plan as swiftly and decisively as Chile. Even if most parents support choice and privatization, as they probably did in Chile, reality in most democratic countries would make Chilean-style implementation difficult. After all, the Chilean plan was implemented by an authoritarian regime that systematically and violently squelched opposition, including forcibly dismantling teachers’ organizations.

We were also able to estimate choice functions for families in Santiago, Chile’s capital. Results using a simple model with no interaction variables suggest that families of higher socioeconomic status are more likely to choose private schools, but that all families derive similar utility from school attributes such as higher test scores and the average schooling of other parents. Including interaction effects, however, we found that parents with more schooling derive the greater utility from increasing amounts of these attributes. Our results therefore reject the hypothesis that less-educated parents respond to the offer of higher performing, higher social class schools to the same degree as do more-educated parents, even when these schools are available in equal numbers and even when their cost is approximately the same.

This should not be interpreted as meaning that less-educated parents are “irrational.” Wells and Crain (1992) argue that school choice is governed not only by

¹¹ Chile’s P-900 program, implemented after the return to democracy, was just such an attempt.

resource availability, but also by access to information and internalized viewpoints associated with social status. Lower income parents may not have full information concerning school quality because such information may be costly to obtain or interpret, a sentiment echoed by Levin (1991). Even with relevant information, members of lower social class groups could be “either intimidated by, distrustful of, or resistant to members of the dominant group and therefore [would] remove themselves from competition for seats in the ‘best’ schools” (Wells and Crain, 1991, pp. 77-78). Lower income parents might not be as likely to choose higher-performing schools with higher social status student bodies even when their children might qualify for these schools or they could afford to pay the somewhat higher costs associated with them. Their self-perception as not “belonging” in these better public or private schools could explain why the utility functions apparently vary by parents’ education. Less-educated parents’ perceptions of their position in the social structure may prevent them from making choices to send their children to higher status schools.

Schools with educated parents may reinforce these perceptions by dissuading less-educated parents from placing their children there. This would be rational behavior on the part of schools if they believed that bringing in lower-status children could affect the school’s desirability to other parents, especially those with more education. Indeed, our results tend to bear out the rationality of such selectivity by profit-maximizing schools.

We also find that lower class size is *not* an important factor in influencing the attractiveness of a school to more educated parents. If this is the case, as our results appear to indicate, school administrators can also lower costs by raising class size as long as they simultaneously maintain a high average parent-education clientele. The reverse

side of this coin is that although urban municipal schools tend to have about the same class size as private voucher schools and do better on the national tests once we adjust their score for the socio-economic background of the pupils, this is not enough for them to be attractive to parents with higher education. Such parents pay more attention to school status (as measured by average parents' education and average test score *unadjusted* for socio-economic background) than "value-added."

Choice studies using U.S. data find similar *tendencies*. What distinguishes ours from those is the availability of detailed data in Chile on families and schools linked by a household survey instrument that actually identifies the school attended by each child in the family. Our results are based on actual choices in an education market that gives families a variety of choices. If less educated parents in Chile have "revealed" utility functions regarding school choice that differ from those of higher educated parents, it is likely that the same would be true in the United States were school choice widened beyond residential movement by voucher plans. The main counter-argument to this assertion is that at higher average national income per capita, even less-educated parents have such high education that the differences we observe in Chile would disappear. But many sociologists would contend that behavior based on social *position* is independent of national income and education level.

There exists another argument that might lessen the significance of our results: different utility functions are immaterial if the resulting choice patterns do not widen the earnings or other welfare differences between the children of more and less-educated parents. The fact that less-educated parents choose lower status schools and higher-educated parents choose higher status schools may not mean much if these same schools

raise their children's academic achievement equally or more than higher status schools. But lower-income children may be penalized in terms of both *peer effect* and *attainment* by attending schools of lower socioeconomic status, hence significant potential losses in welfare. Higher status schools have, on average, higher scoring students and build "cultural capital" that raises students' academic expectations for a given level of academic achievement (Cookson and Persell, 1985). This also suggests that higher educated parents are not irrational either. They make not get higher value added from sending their children to private schools (and paying tuition besides), but they probably do get a significant peer effect on their child's achievement and a potentially large educational attainment effect.

Another interesting aspect of these results is what they tell us about how private schools operate. Catholic schools in Chile—most pre-dating the 1981 voucher reform—are able to achieve higher test scores than public schools, even when we account for pupil social class differences, and do so by spending more per pupil. For profit schools, which sprang up like mushrooms in Chilean cities when vouchers were made available, are no better at producing high achievement scores for a child of a given socioeconomic background than public schools. They *are* better at attracting higher scoring students. They do that by locating, on average, in higher income neighborhoods and tending to be selective (Parry, 1996). They are also better at reducing costs per pupil than public schools (public schools in Chile are more constrained in their hiring practices), and do that by paying their personnel less.¹² This implies that the line of least resistance for

¹² To some extent, private schools in urban areas, particularly in Santiago, are able to "free ride" on the public education system, which provides the main employment draw for individuals into the teaching profession and an employment and pay "base."

private for profit voucher schools in competition with public schools is to attract higher scoring students by establishing themselves as somewhat higher socially than the public schools in their area, then holding down costs. This can be interpreted as a positive effect of markets, but it hardly fulfills the promise of raising a community's pupil performance.

We also used panel data of test results and the density of private schooling at the municipal level from the early 1980s to the mid-1990s to estimate the possible effect that increased competition from private education might have had on public school performance and overall educational performance (McEwan and Carnoy, 1999b).

We found that the effect of competition is positive in the Metropolitan Region, though modestly so, accounting for roughly 0.2 of a standard deviation increase in test scores over 15 years. These overall gains appear to be driven by public schools in which parents have lower-middle or middle levels of educational attainment. Outside the Metropolitan Region, where three-quarters of Chile's primary students live, competition has slightly negative effects. Evidence suggests that the P-900 program had positive effects of 0.1-0.2 standard deviations on Spanish and mathematics achievement. These findings are consistent with an extensive literature in developing countries that shows positive effects of basic resource investments in primary schools (Fuller & Clarke, 1994).

Our results neither refute nor provide strong support for the notion that competition will lead to improvements in the quality of public schools. Instead, they suggest that effects of competition may exist in some contexts, but not in others (in this respect, they resemble the rather mixed findings of U.S. research, which has relied on data from a variety of states, time periods, and institutional contexts. Existing theory and evidence are unable to provide much guidance. If economists are to provide credible

advice to those who design and implement voucher plans, we require a fuller understanding of the conditions under which competition may or may not produce positive effects.

We often presume that vouchers can be implemented just as described in planning memoranda. However, the Chilean experience demonstrates that many stakeholders will seek to alter, often with great success, the form and function of voucher policies. This modifies the incentives and constraints faced by public school managers and, ultimately, the effects that vouchers will have on student outcomes. A cogent lesson from Chile is that an economic understanding of vouchers and competition cannot divorce itself from the larger political economy of school choice.

It is worth noting that between 1980 and 1990, the Chilean voucher plan was “unusual” in that it was implemented in a dictatorship. In many respects, its provisions during that first decade met many of the conditions favored by voucher advocates (e.g., the abolition of teachers’ unions and unregulated expansion of for-profit private schooling). If the effect of competition on public education was attenuated in Chile’s political context, it seems likely that it would also be attenuated in politically democratic societies, where political opposition to vouchers would flourish.

We observed in Chile that competition is only one of several potential effects that vouchers may have on schools and students. Vouchers encourage a large-scale sorting of students across public and private schools. This certainly occurred in Chile, and some empirical evidence suggests that it assumed the form of “cream-skimming”, in which able or privileged students were the first to exit public schools (Gauri, 1998; Parry, 1996). If peer effects are important, then it is probable that the exit of these students

negatively affected the outcomes of students remaining in public schools. We don't have empirical evidence on the existence or magnitude of such an effect. However, it is clear that a full evaluation of the Chilean reform—or any voucher plan, for that matter—should weigh the beneficial effects of competition against the potentially harmful effects of cream-skimming.

A curious feature of the voucher literature is that advocates and critics have a tendency to emphasize one of these effects, and ignore or downplay the others. For example, advocates have emphasized the positive effects of competition (e.g., Hoxby, 1998), while skeptics have focused on the negative effects of sorting and cream-skimming (e.g., Fuller, Elmore, & Orfield, 1996). To adequately evaluate the impact of vouchers, we need to consider both.

Conclusions

The Chilean experience with a nationwide voucher plan suggests that “marketizing” education will increase school choice for a certain fraction of parents, but is unlikely to improve educational delivery for more than a small fraction of the school population. Chile's experience also suggests that vouchers increase inequality in the school system, mainly through peer effects. The Chilean results are generally consistent with much smaller voucher experiments and other choice plans in the U.S. (Levin, 1998).

Such results should not be surprising. For those who promulgated the Chilean reform, and for most of the architects of voucher plans in the U.S. and elsewhere, the main motivation for privatizing education is a profound belief that a public education monopoly restricts individual choice. For them, expanding choice, in and of itself, improves public welfare—even if it also produces greater inequality.

The main reasons that increased choice seems to lead to greater inequity are that “better” privately-run alternatives to public schools are more likely to locate in areas where they can attract “lower cost” students, and that many parents do not realize their first choice of schools. If schools operate for profit, or even as non-profit private organizations, it is almost impossible to prevent them from selecting where to locate and from selecting students. Even in the allegedly strictly controlled Milwaukee experiment, the private schools involved managed to turn away students with “special problems.”

One way to reduce the disequalizing side effects of vouchers is to target them. By limiting vouchers to low-income families, as they are now in Milwaukee, Cleveland, and other cities, it is more likely that some high quality private for-profit or non-profit providers would enter the inner city market. But to achieve that goal, voucher values will have to be as high or perhaps higher than current public school costs per student, especially if the number of vouchers is larger than existing Catholic school excess capacity.¹³ The original Friedman idea that private schools would deliver education equal in quality to current public education at one-half the price has never been realized in practice. Private providers will demand at least as much as per student costs in local public schools and will avoid taking special education students. Witness the rise in voucher values in Milwaukee, and Cleveland’s Hope Schools (the only for-profit provider in the Cleveland voucher plan) shifting to much higher “vouchers” associated with charter status. The political question then becomes whether legislators will pass voucher plans that provide large vouchers to low-income families but not to middle class families.

This still does not solve the problem of improving the quality of education even for those low-income students able to get into private schools. Our data from Chile suggest that even in the best of cases, fifteen years of intense competition improved achievement in public schools by only a small amount. “Value added” in U.S. private schools is by the most optimistic accounts only slightly higher than in public schools. Studies comparing voucher or private schools with public schools find no differences or only small differences in achievement. So privatization solves neither the gap in achievement between low-income children and higher-income children nor the gap in access to high quality schools. With vouchers, the vast majority of low-income children still get less than adequate education, even though some will switch schools. In Chile, the measure that most effectively addressed the quality of education problem in low performing public schools was not increased competition from privately-run schools, but effective Ministry of Education intervention in building capacity—new curriculum materials and training teachers to use them.

¹³ Catholic schools will accept smaller vouchers because they are currently operating at less than capacity. Vouchers can also be used to subsidize current Catholic school students. Once capacity is filled, however, it is unlikely that the parish or archdiocese will open more schools at the same low price.

Table 1. *Characteristics of primary students, teachers, and schools*

	Public DAEM	Public corporation	Catholic voucher	Protestant voucher	Non- religious voucher	Private non- voucher
STUDENTS						
Female (%)	48.7	48.2	57.2	49.4	46.2	50.5
Mother's schooling ^a	7.49 (4.80)	8.97 (2.77)	10.70 (3.45)	9.95 (3.17)	9.28 (2.98)	14.20 (2.26)
Father's schooling ^a	7.68 (5.01)	9.44 (2.92)	11.18 (3.56)	10.53 (2.93)	9.64 (3.06)	15.35 (2.36)
Monthly household income ^b	1.65 (2.34)	2.29 (2.23)	3.02 (3.19)	2.61 (1.96)	2.88 (3.11)	11.17 (31.01)
N	16,707	2,740	2,622	227	3,125	1,159
TEACHERS						
Female (%)	71.9	77.9	75.6	69.8	71.8	73.5
College graduate (%)	97.8	97.0	96.5	94.7	91.9	96.9
Age (mean)	46.1 (8.4)	46.1 (8.6)	40.7 (10.0)	38.5 (9.1)	39.7 (9.8)	39.1 (9.8)
Contractors (%)	9.3	12.3	10.4	17.9	19.2	14.6
Moonlighting (%)	10.6	20.1	21.8	21.5	30.7	15.9
N	35,683	14,804	7,495	1,132	15,511	10,377
SCHOOLS						
Class size ^c	22.8 (8.9)	28.6 (10.3)	38.7 (5.9)	32.3 (8.7)	28.0 (9.6)	21.8 (8.8)
Teacher contract hours per class	38.1 (8.8)	37.9 (7.9)	40.7 (8.5)	38.3 (8.3)	34.0 (8.4)	45.1 (17.4)
Enrollment in grades 1-8	215 (293)	414 (390)	576 (282)	334 (245)	286 (368)	292 (258)
N	3,823	972	337	87	1,455	499

^aMeans of these variables exclude observations for children whose mothers or fathers are absent from the household.

^bVariable divided by 100,000.

^cClass size is calculated as total primary enrollments in each school divided by the number of primary classes.

Source: Student data are from the 1994 CASEN household survey, Ministry of Planning. Teacher data are from the 1996 teacher census, Ministry of Education. School data are from Ministry of Education enrollment files, 1996. Student data are from a sample, while other data have census coverage.

Note: Standard deviations for continuous variables are in parentheses. Student observations are weighted in order to account for unequal probabilities of selection into the CASEN sample. Thus, the distribution of student observations across school types does not reflect the population distribution.

Table 2. *Fourth-grade achievement differences between Public DAEM and other school types*

	Dependent variable: SPANISH					Dependent variable: MATH				
	1990	1992	1994	1996	Mean effect (90-96)	1990	1992	1994	1996	Mean effect (90-96)
Unadjusted difference:										
Public corporation	0.27	0.22	0.11	0.05	0.16	0.22	0.21	0.10	n.s.	0.13
Catholic voucher	1.11	1.09	1.07	0.99	1.07	1.02	0.98	0.91	0.87	0.94
Protestant voucher	0.40	0.31	0.47	0.39	0.39	0.37	0.22	0.36	0.33	0.32
Non-religious voucher	0.48	0.40	0.40	0.34	0.40	0.44	0.33	0.33	0.27	0.35
Private non-voucher	1.93	1.89	1.90	1.61	1.83	1.94	1.75	1.80	1.56	1.76
Adjusted for SES, location:										
Public corporation	-0.04	-0.06	-0.08	-0.08	-0.06	-0.04	-0.03	-0.06	-0.09	-0.06
Catholic voucher	0.31	0.23	0.25	0.27	0.27	0.28	0.19	0.17	0.24	0.22
Protestant voucher	-0.17	-0.21	-0.01	-0.16	-0.14	-0.18	-0.27	-0.09	-0.15	-0.17
Non-religious voucher	-0.05	-0.10	-0.07	-0.07	-0.07	-0.04	-0.10	-0.08	-0.08	-0.07
Private non-voucher	0.63	0.61	0.66	0.38	0.57	0.67	0.58	0.65	0.40	0.57
Adjusted for SES, location, school characteristics:										
Public corporation	---	---	---	-0.08	---	---	---	---	-0.08	---
Catholic voucher	---	---	---	0.26	---	---	---	---	0.22	---
Protestant voucher	---	---	---	-0.09	---	---	---	---	-0.08	---
Non-religious voucher	---	---	---	0.06	---	---	---	---	0.06	---
Private non-voucher	---	---	---	0.42	---	---	---	---	0.44	---

n.s. indicates not statistically significant at 5 percent.

Note: Unadjusted differences are from achievement regressions in which school type dummies are the only independent variables (omitted category: Public DAEM). Adjusted differences are from regressions that control for additional independent variables

Table 3. *Mean annual per-student costs, divided by category (1996 pesos)*

	Public DAEM	Public corporation	Catholic voucher	Protestant voucher	Non- religious voucher	Private non- voucher
National voucher payments	185,882	163,084	165,499	182,083	158,848	---
Municipal contributions	23,834	36,258	---	---	---	---
Parent contributions	164,224	193,794	252,312	211,965	232,363	731,125
Imputed rent on land and buildings	52,244	44,257	74,425	59,911	---	---
P-900 program	4,133	2,605	265	1,579	1,904	---
Total	430,316 (120,913)	439,998 (99,291)	492,501 (97,937)	455,538 (115,373)	393,115 (96,596)	731,125 (120,318)
N	1,278	386	125	21	766	369

Notes: Standard deviations are in parentheses.

Table 4. *Cost differences between Public DAEM and other school types, 1996*

	Difference adjusted for:		
	SES, location	SES, location, municipal dummies	SES, location, municipal dummies, school characteristics
Public corporation	n.s.	n.s.	n.s.
Catholic voucher	n.s.	n.s.	5.0%
Protestant voucher	-9.3%	n.s.	n.s.
Non-religious voucher	-14.9%	-13.2%	-11.2%
Private non-voucher	13.8%	14.0%	12.2%

n.s. indicates not statistically significant at 5 percent.

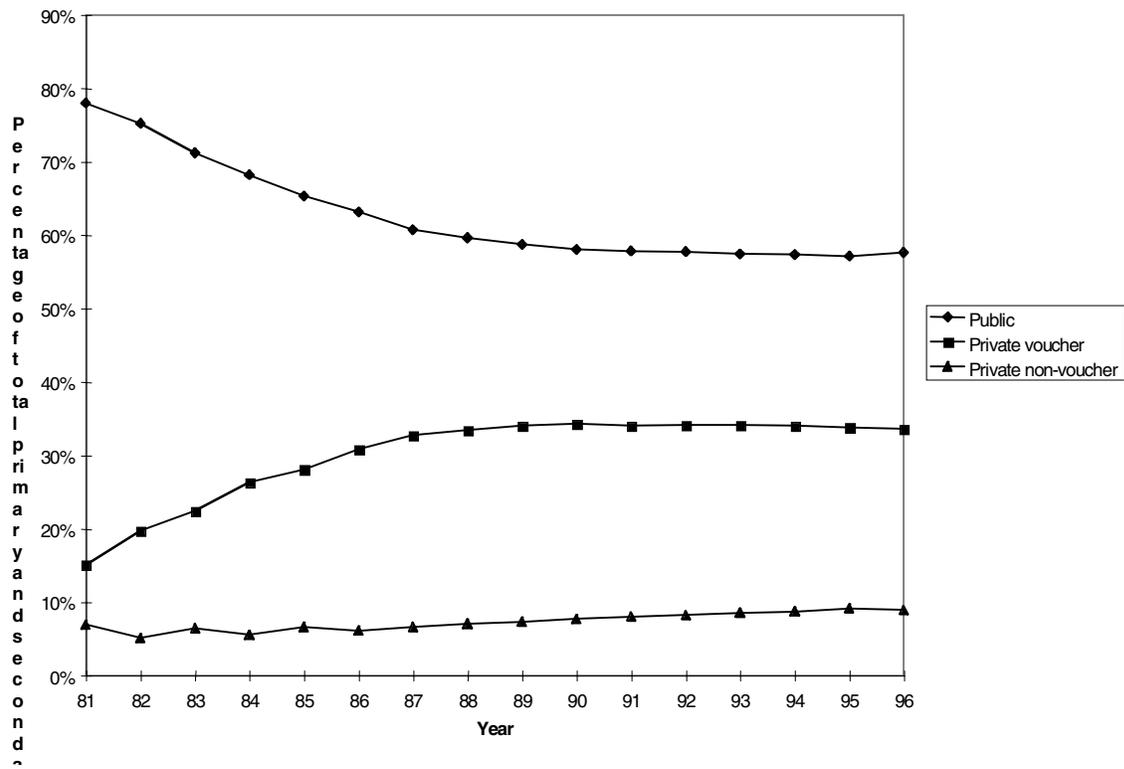
Table 5. *The effects of private enrollment share on fourth-grade mathematics achievement, by Region and parental education*

	Dependent variable: MATH									
	Metropolitan Region					Other Regions				
	Entire sample	Percent of parents in school with at least some secondary education:				Entire sample	Percent of parents in school with at least some secondary education:			
≥0 and <25		≥25 and <50	≥50 and <75	≥75 and ≤100	≥0 and <25		≥25 and <50	≥50 and <75	≥75 and ≤100	
PERPRIV	0.222 (0.133)	-0.459 (0.380)	0.469 (0.191)	0.369 (0.327)	-0.554 (0.504)	-0.219 (0.091)	-0.171 (0.207)	-0.112 (0.130)	-0.507 (0.172)	0.711 (0.293)
PERPRIV ²	-0.171 (0.125)	0.678 (0.462)	-0.496 (0.213)	-0.203 (0.283)	0.297 (0.381)	0.229 (0.169)	-0.223 (0.384)	0.300 (0.249)	0.711 (0.293)	0.711 (0.293)
P900	1.086 (0.672)	1.675 (1.379)	0.698 (0.869)	1.508 (1.866)	8.220 (7.879)	2.239 (0.322)	2.632 (0.509)	1.956 (0.496)	1.959 (0.708)	1.959 (0.708)
NATIONAL	2.219 (2.203)	7.391 (11.506)	-5.389 (4.478)	5.715 (3.131)	8.738 (6.136)	0.621 (2.170)	-8.034 (6.290)	4.532 (1.116)	3.595 (4.009)	3.595 (4.009)
SES1	0.829 (1.949)	1.546 (2.559)	-0.035 (2.956)	27.477 (13.650)	---	0.502 (0.588)	0.180 (0.738)	1.245 (1.048)	-8.242 (3.695)	-8.242 (3.695)
SES3	-0.684 (0.581)	-7.622 (2.122)	-1.176 (1.191)	1.037 (0.691)	-2.073 (1.326)	-0.302 (0.354)	1.028 (0.963)	-0.729 (0.682)	-0.169 (0.439)	-0.169 (0.439)
SES4	-0.143 (1.351)	---	---	---	-2.014 (1.805)	-0.350 (1.515)	-18.654 (1.440)	---	-1.484 (2.381)	-1.484 (2.381)
N	2299	406	1054	618	221	9404	3443	3550	1831	1831
R ²	0.077	0.094	0.090	0.101	0.160	0.052	0.035	0.068	0.103	0.103

Note: All regressions use the difference-in-difference specification and include year dummies. Huber-White standard errors are in parentheses. Coefficients and standard errors for PERPRIV² are multiplied by 100.

PERPRIV = percent private enrollment in municipality.

Figure 2: Evolution of private and public enrollment shares, 1981-1996



Source: Vargas (1997)

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