

How Markets Affect Quality:

*Testing a Theory of Market Education
Against The International Evidence*

*Prepared for the Cato Institute,
And published as a chapter in the book:
Educational Freedom in Urban America:
Brown v. Board after Half a Century*

May 4, 2004

Table of Contents

Introduction	4
Effective School Systems: Features and Predictions	5
Predictions	5
The Modern International Evidence Market, Pseudo-Market and Bureaucratic Systems Compared.....	6
India	6
Conditions	6
Outcomes	8
Pakistan	10
Conditions	10
Outcomes	11
Indonesia	11
Conditions	11
Outcomes	12
Philippines	13
Conditions	13
Outcomes	14
Thailand	14
Conditions	14
Outcomes	15
Vietnam	15
Conditions	15
Outcomes	16
Tanzania	16
Conditions	16
Outcomes	17
Conditions	19
Outcomes	19
Dominican Republic	20
Conditions	20
Outcomes	20
Chilean Government Subsidy Program	21
Conditions	21
Raw Outcomes	22
Simple OLS Regressions of Academic Outcomes By School Type	23
Correcting for the Problem of Selection Bias	23
Redistribution of Students—Competition through Creaming?	25
Effects of Competition on Public and Private Schools	27
U.S. Private Subsidy Programs	28
Conditions	28
Outcomes	29
U.S. Publicly Funded Voucher Programs	30
Conditions	30
Outcomes	30

Assessing the Five Feature Theory in Light of the Empirical Evidence.....	31
The Impact of Parental Vs. State Funding	32
The Impact of Private Vs. Government Management	32
The Impact of Competition	33
The Quality of Parental Decision Making	34
The Impact of Regulation on Private Schools	34
The Supply of Private Schools	35
Assessing the Predictions	35
Theory, Evidence, and Education Tax-Credits.....	39

Introduction

In a previous publication, I presented a comparative analysis of education systems from classical Greece to the modern United States.¹ The purpose of that investigation was to look for patterns in the performance of alternative school management and funding mechanisms that persisted across time and place. In particular, three sorts of comparative observations were made:

- Observations of similar education systems operating in distinctly different cultural and economic settings
- Observations of different education systems operating in similar cultural and economic settings, and
- Observations of changes in educational conditions and outcomes as particular societies shifted from one sort of education system to another

Such a broad historical and international study did not of course permit the formulation of a highly elaborated or mathematically precise theory of comparative school governance. It did, however, suggest that some types of school systems are indeed better at serving the public than others. In trying to identify the critical ingredients of these superior school systems, I enumerated a short list of features that those systems tended to share. From this list, and the discussion that accompanied it, it is possible to impute rough predictions about the expected behavior of school systems (based on whether or not they share the features in question).

From that earlier work, and the predictions that follow from it, I have argued elsewhere that a particular arrangement of education tax credits should be preferred to both our current system of public schooling and to alternative market-inspired education reforms.²

This paper attempts to test the validity of my earlier predictions and the argument for education tax credits by vetting them against a body of empirical findings not used in the original study.³ The findings in question are drawn from the international econometric literature on private versus public schooling in less developed countries. This data set is particularly valuable due to the broad spectrum of governance and funding systems in place both within and among the subject countries.

Immediately following this introduction is a brief summary of the features I have alleged to be associated with superior school system performance, and a short list of predictions that follow from them. The subsequent section, which is the main body of the paper, distills the international evidence comparing alternative forms of public and private schooling in less developed nations. Every effort was made to ensure the comprehensiveness of this research summary, but some studies of interest could not be considered because they were not obtained (or were not obtainable) within the time-frame of this project, while others could simply have been missed. These omitted papers, and any new contributions to the field, may be considered in a subsequent revision of this investigation.

Following the presentation of findings is a discussion of the patterns that emerge from the literature, and an evaluation of the validity of the subject predictions. Finally, my earlier arguments in favor of education tax credits are evaluated in light of the evidence presented below.

Effective School Systems: Features and Predictions

In 1999, I suggested that the historically most effective education systems tended to share most or all of the following five features: choice and direct financial responsibility for parents, and freedom, competition, and the profit motive for schools. For concision, this will be referred to simply as FFT (the Five Feature Theory) for the remainder of this paper.

The requirement that individual parents decide what and by whom their children are taught is based on two concerns. First, it is argued that parents have historically made better decisions regarding their own children's education than appointed or elected officials have made on their behalf. Second, government school systems offering a uniform curriculum are claimed to have caused more social conflict than have parent-driven education markets.⁴

The direct payment of tuition by parents is alleged to encourage parental involvement, reduce the likelihood of school fraud, make schools more responsive to parental demands, stave off the encroachment of government regulation, and help control costs.⁵

Freedom for educators means that anyone can open a school, and that schools have complete discretion over their staffing, curricula, admissions, fees, and budgets. The rationale given for these stipulations is that they are necessary to permit and foster innovation, responsiveness to families, specialization, and the expansion of popular schools.⁶

Competition among educators is advocated on the grounds that it allegedly provided a powerful incentive for schools to adopt effective instructional methods and to strive to maximize the conditions and outcomes valued by the families they served. Vigorous competition, specifically the risk of losing students to (and being forced out of business by) competitors, is also credited with compelling schools to maintain their facilities in acceptable condition.⁷

The case for the profit motive is based on the alleged need for an extra incentive capable of overcoming the risks associated with innovation and expansion. The absence of the profit motive in mainstream U.S. k-12 education, for example, is blamed for the fact that even highly popular non-profit schools have not added substantially to their enrollments over time. Conversely, the presence of the profit motive is credited with the vigorous expansion of tutoring services in Asia and North America, and of education chains such as Brazil's Objetivo and the American University of Phoenix.

Predictions

It is not contended that possession of these characteristics guarantees the perfect operation of schools or the complete satisfaction of families, but simply that systems closely approximating this arrangement are more likely than alternative school governance and funding formulations to create the conditions and outcomes valued by parents.

Some specific predictions follow from the absence or substantial compromise of these characteristics.⁸

- When parents lack choice and control over their children's education they are likely to have greater difficulty obtaining the kind and quality of educational services they seek. To the extent that an official curriculum is imposed by the state (thus greatly limiting parental choice and control), it is expected to precipitate social conflict (at least in pluralistic societies).⁹

- Lack of competition between schools is expected to increase costs and decrease quality and efficiency, while also lessening the likelihood that schools will try to do their best with each and every child. It is also expected to be associated with inferior facilities maintenance, and with parents having reduced access to concrete information on their children's performance.¹⁰
- Government restrictions on the creation and autonomy of schools are predicted to abbreviate the range of educational services available to families, preventing schools from offering the services desired by their specific clientele. Caps on school fees and the imposition of government budgeting rules are expected to stifle innovation and expansion by making it difficult for schools to raise and allocate the funds necessary to pay for these activities.¹¹ Lack of school autonomy, particularly in combination with lack of parental choice, may also result in a less communal and more disruptive school and classroom atmosphere.¹²
- Reducing or eliminating direct payment of tuition by parents is predicted to erode parental control and choice (leading to the problems associated with low parental choice), and increase corruption and fraud. Since state education funding is generally associated with comprehensive state regulation, it is also likely to decrease the level of meaningful competition among schools by homogenizing the services they offer. The extent of the damage caused is suggested to be proportional to the reduction in parental fees.¹³
- Lack of the profit motive is expected to stifle innovation and impede the process by which more effective schools would expand and either take over or crowd out their less-effective competitors. It is also argued to dull the incentive for cost-cutting and efficiency, discourage entrepreneurs from entering the profession, and discourage the most ambitious and proficient educators from remaining in the profession over the long term.¹⁴

The Modern International Evidence

Market, Pseudo-Market and Bureaucratic Systems Compared

India

Conditions

There are four main categories of schools in India:

- government schools
- government-recognized, government-aided private schools (hereafter, "private aided")
- government-recognized, unaided private schools (hereafter, "private unaided")
- unrecognized, unaided private schools (hereafter, "unrecognized")

Private aided schools are in many ways indistinguishable from government schools. In the northern state of Uttar Pradesh, for example, government funding comes in the form of a block grant that is not tied to enrollment levels or performance. Expenditures are thus comparable between private aided and government schools. Private aided schools cannot

charge tuition, nor can they hire, fire, or set compensation levels for their own staffs. Personnel are instead appointed by the Uttar Pradesh Education Service Commission.¹⁵ Levels of teacher unionization are also comparable between private aided and government schools.

Unaided private schools are fully self-financed and independent. Average per pupil expenditures are roughly half those in the aided and government sectors.¹⁶ If an unaided school is "recognized" by the state, it is allowed to offer officially sanctioned degrees—something that unrecognized schools are not permitted to do.¹⁷ To be recognized, however, schools must satisfy a range of requirements including having large (1000 sq. yard minimum) playgrounds, government-trained teachers, and a substantial minimum bank balance. These and other requirements make recognition prohibitive for most unaided schools serving the poor. In the state of Andhra Pradesh, only 40 percent of private schools are recognized.¹⁸ In villages and rural areas, recognized schools make up an even smaller segment of the private education sector.

Detailed information on the conditions in rural public and private schools is available from a 1999 study of five Indian states,¹⁹ known as the PROBE report.²⁰ Only about five percent of the private schools in this study were found to be government aided, while two-thirds or more were unrecognized.²¹

In terms of the kinds of facilities available to them, private schools were found to be roughly comparable to public schools. Private schools were more efficient in using and maintaining their facilities, however.²² Private school buildings and equipment were generally in a much better state of repair. About three quarters of public schools were in need of major repairs of one or more kinds, and a third required completely new buildings.²³ Half of the private schools, by contrast, needed no major repair of any kind.

Even where the resources were available, the PROBE team found that public schools made little effort to "create a congenial school environment,"²⁴ adding that public "schoolrooms are allowed to degenerate... and the area around the school is often dirty and unpleasant."²⁵ The situation was usually different among the private schools, they noted, many of which did "manage to create some kind of learning environment with the simple means available to them."²⁶

School records indicated that attendance levels were higher among private than among public school students, and private school records were found to much more accurately reflected actual attendance as observed by PROBE researchers. Public school attendance records were determined to be inflated *vis à vis* actual observed attendance levels.²⁷

There is no simple correlation between class size and school type. In the rural areas studied by PROBE, the (predominantly unaided) private schools had much smaller classes than government schools.²⁸ In urban areas, however, there is evidence that unaided schools have considerably larger classes than aided schools and especially government schools.²⁹

In the PROBE states, public school teachers had more and higher teaching credentials, as well as much higher salaries than private school teachers—often more than five times higher.³⁰ Actual teaching activity was much less common in public schools, however. When PROBE researchers made their unannounced visits, they found that only 53 percent of public schools had any teaching activity going on in any of their classes. A third of headteachers³¹ were simply absent, and only a quarter were engaged in teaching activity. Even this is an overstatement, since schools that were closed on the day of their visit (which was a school

day) were simply omitted from the calculations, rather than being counted as having no teaching activity.³² "Generally," the researchers observed, public school "teaching activity has been reduced to a minimum, in terms of both time and effort. And this pattern is not confined to a minority of irresponsible teachers—it has become a way of life in the profession."³³ The five states surveyed by PROBE are not unique in this respect, as low-levels of teaching activity have also been observed in the government school system of Tamil Nadu.³⁴

Unlike the situation in public schools, PROBE researchers found a "high level of teaching activity in private schools, even makeshift ones where the work environment is no better than in government schools."³⁵ Private schools "placed a visible emphasis on discipline and instruction,"³⁶ and their classroom activity was described as "feverish."

Apart from the higher level of teaching activity in private schools, they were also found to more closely and individually monitor their students. First grade children, who were found to be "much neglected" in government schools, "received close attention in private schools, perhaps because private-school teachers are keen to retain their 'clients', and know that a neglected [first grader] can easily drop out."³⁷ Private schools' greater and more successful efforts at maintaining order and discipline were another major difference appreciated by parents. The differing learning conditions in public and private schools were not lost on parents.

Most parents stated that if the costs of sending a child to a government and private school were the same, they would rather send their children to a private school. The reason, almost invariably, is that they are dissatisfied with the functioning of the local government school.... As parents see it, the main advantage of private schools is that, being more accountable, they have higher levels of teaching activity.³⁸

Not surprisingly, given the characteristics of the schools noted above, the parent/teacher relationship was found to be "more constructive" in the private sector.³⁹

Total expenditure figures for the various school types were not reported by PROBE researchers, but figures are available from urban Uttar Pradesh, one of the states covered in the PROBE report. Government and aided private schools in Uttar Pradesh had comparable per-student expenditures, while unaided private schools spent roughly half as much as the other two school types.⁴⁰ Both government and aided schools spent 97.5 percent of their budgets on salary costs, while unaided schools had a 74 percent / 26 percent split between salary and non-salary costs.

Outcomes

Though the PROBE report indicates that teaching activity was substantially more common and more assiduous in rural private schools, the researchers did not test students to ascertain the comparative effectiveness or efficiency of public and private schools. Fortunately, a study of urban school performance in Uttar Pradesh was published around the time that data collection for PROBE was going on. This study controlled for student background variables as well as selection bias.⁴¹ After controlling for these factors, Kingdon found that the average student would perform better in a private unaided school than in either a government school or an aided private school. The average student would do very slightly better in a government school than in an aided school.

Factoring in per-student expenditures, Kingdon concluded that unaided schools were twice as efficient as government schools, and almost twice as efficient as aided private schools. Aided schools were slightly more efficient than government schools, since their spending levels were somewhat lower.⁴²

Though Kingdon's findings are consistent with the situation observed in five Indian states by the PROBE team, conflicting results have been published for primary schools in the southern state of Tamil Nadu. After analyzing a sample of schools in that state, Sajitha Bashir found that unaided schools performed significantly better in mathematics but significantly worse in the Tamil language than government schools, and that they were vastly more expensive and thus less efficient than government schools.⁴³ Bashir found aided private schools to be uniformly more effective and more efficient than government schools.

The weak unaided school performance in the Tamil language is explained by the fact that all the unaided schools in Bashir's study taught in English, not Tamil. Instructional use of the Tamil language at unaided schools was limited to a single class in that subject. If parents pay to send their children to unaided schools in part to learn English, it would seem inappropriate to judge their effectiveness by testing students' Tamil language proficiency.

The cost discrepancy between Bashir's findings and those of PROBE and Kingdon are striking. The average total parental expenditure on private unaided schooling found in the PROBE states was 940 Rupees.⁴⁴ This is lower than the total per-pupil expenditure that Bashir reports for government and aided private schools in her Tamil Nadu sample. The unaided private schools in Bashir's sample, by contrast, cost parents a total of 1,398 Rupees.

One possible explanation for these higher costs is that Bashir seems to have included only government-recognized schools in her sample.⁴⁵ Due to the costly requirements imposed by recognition, these schools have to charge substantially higher fees than unrecognized unaided schools. By itself, this fact may account for much if not all of the higher cost of Bashir's sample. School fees averaged only 296 Rupees in the PROBE report, but between 646 and 771 Rupees in Bashir's unaided schools. Other out-of-pocket costs, such as for clothing or school uniforms, notebooks, etc., also appear to have been higher in Bashir's sample, which would be consistent with higher spending on these items by the relatively wealthier patrons of more expensive recognized (versus unrecognized) schools.

Unaided schools are also far rarer in Tamil Nadu than elsewhere in India. According to a World Bank study, only one tenth of one percent of elementary schools in Tamil Nadu were unaided in the early 1990s, though Bashir puts the figure as high as 4 percent.⁴⁶ By contrast, 10 percent of all schools in rural India were found to be unaided schools in the mid 1990s, and the percentage was much higher in urban areas, reaching as high as 80 percent in urban Uttar Pradesh, and these figures are thought to undercount unrecognized unaided schools (Kingdon, 1996b).⁴⁷ Duraisamy also found that Tamil Nadu's small cadre of unaided schools enjoyed, on average, better facilities and smaller classes than government schools.⁴⁸

Taking all this into account, it seems that unaided schools are a smaller and perhaps somewhat more elite sector in Tamil Nadu than elsewhere in India, and Bashir's sample appears to include only the more expensive recognized schools from among this group. Up until the mid 1990s, government restrictions existed on the creation of unaided private schools in Tamil Nadu, perhaps explaining their disproportionately small share of unaided schools when compared to the rest of India (Uttar Pradesh in particular).

The slight discrepancy between Bashir's and Kingdon's findings regarding private aided schools is likely due in part to the impact of different regulatory conditions in Tamil Nadu versus the rest of India. Private aided schools in Tamil Nadu are afforded more autonomy than those elsewhere, being permitted, for example, to hire and fire their own teachers. This could certainly have a positive impact on school efficiency if school managers select teachers who are better suited to their schools, more motivated, or more competent. Evidence from Tanzania, for example, suggests that private schools make better personnel decisions than government schools.⁴⁹

This brings us to a methodological concern regarding Bashir's work. Fee-charging private schools are not theorized to be more efficient or effective due simply to private ownership, but rather because their greater autonomy and market incentives are presumed to both allow them and pressure them to make better decisions in such areas as staffing, management, and curricula. Despite this fact, Bashir actually controlled for several of these factors in her model, effectively tying private school managers' hands behind their backs.

For example, Bashir's model controlled for the mathematical competence of mathematics teachers, and this vitiates any advantage that private schools might have in recruiting, training, and retaining more competent mathematics instructors through their control over personnel policy. Bashir controlled for the motivation of headteachers despite the fact that the autonomy enjoyed by market schools is claimed to lead to a more motivated workforce.⁵⁰ Bashir also controlled for the hours headteachers worked on academic tasks outside of their teaching duties and for the frequency of their meetings with teachers. Holding all these operational details of schools constant in a study that is supposed to determine sectoral differences resulting *from* those differences would seem to be counter-productive.

Pakistan

Conditions

Officially, Pakistan is well endowed with public schools, but in practice "a combination of corruption and bureaucratic inefficiency has all but destroyed the system."⁵¹ In Punjab, for instance, one audit revealed that a third of all state-paid teachers never showed up for work. Many schools exist only on paper, with local bureaucrats simply embezzling the government funds allocated for their creation and maintenance, without ever hiring a teacher or enrolling a student.⁵²

In the public schools that do operate, "student achievement is poor because of teacher absenteeism, an inappropriate curriculum, poor textbooks, limited availability of supplementary learning materials, and weak teaching," according to the World Bank⁵³ (add footnote undated-a). The same World Bank report notes that public sector education management "is inefficient, and planning and budgeting capacities are weak," with unpredictable release of government funds aggravating the managerial and operational inefficiency of the schools.

The government system's organizational problems are manifested in the quality of education received by students. Appraisals of student performance generally suggest that the value added by these schools is low, and parents appear to recognize that fact. Attendance rates are low, with 20 to 30 percent of schools having few if any students.⁵⁴

The low perceived quality of public schools led to rapid growth in private education during the 1980s and '90s. These schools serve families at all income levels, even the poorest. In a study of Lahore, Alderman, Orazem, and Paterno found that the very poorest families (earning less than \$57/month) in the poorest neighborhoods, almost as likely to enroll their children in private as in public schools (37 percent in private schools versus 40 percent in government schools).⁵⁵ Families in the next income category, earning between \$57 and \$100 per month, were substantially more likely to send their children to private than to public schools (40 percent were enrolled in government schools, 56 percent in private schools). In this sample of poor Lahore neighborhoods, only 12 percent of families earning more than \$285 per month sent their children to public schools.

Total rates of school enrollment are strongly correlated with population density. Nationwide, gross urban enrollment rates are 50 percent larger than those in rural areas.⁵⁶ This urban/rural divide is more pronounced in the private than the public sector. In Punjab, for instance, urban children are two-and-a-half times more likely to attend private schools than rural children.⁵⁷

Outcomes

Comparisons of Pakistani public and private school student achievement are scarce, but Alderman, Orazem, and Paterno did undertake such a study in 2001. Among their findings were that "private schools have better [academic] outcomes than government schools holding fixed measured home and school inputs into the human capital production process." The measure of achievement was the aggregate of two tests, one in the Urdu language and one in mathematics.

Overall efficiency was also found to be greater in private than in government schools. After taking into account all the various costs associated with private schools (fees, books, uniforms, supplies, transportation, and tutorial services), the researchers noted that, "government schools [had] much higher per-pupil expenditures,"⁵⁸ than private schools.

Alderman, Orazem, and Paterno also examined the link between spending and achievement. When all public and private schools were taken together, they found no significant correlation between spending and achievement. However, when private schools were considered on their own, spending and achievement were found to be positively linked.

Summarizing their findings, the researchers concluded that:

Schooling choices of poor households are very sensitive to school fees, proximity, and quality. Rather than being exploited by private schools, evidence suggests that strong demand for private schools is in response to better quality and learning opportunities offered by private schools.⁵⁹

Indonesia

Conditions

Though virtually all elementary education in Indonesia is government run, the same is true of only about 70 percent of secondary schooling. Access to government secondary schools is rationed, with admission contingent on the test-scores of applicants. Public schools also have much lower out-of-pocket costs to students and higher overall expenditures than private

schools. This combination of selectivity, lower fees, and higher spending means that public schools are highly sought-after. As a corollary, private schools are often seen as a fall-back option for students unable to gain admission to public schools.⁶⁰

Both public and private schools receive some government funding, with the level of funding varying widely both between and within sectors. Central government funding of private schools averages 7.4 percent of total school revenues in Jakarta, 42.2 percent in other parts of Java, and 80.7 percent outside of Java. Among public schools, central government funding of public schools ranges from 70 percent in Jakarta, to 95.5 percent outside of Java.⁶¹ Considerable variation exists within regions as well. The balance of school funding is local, with the vast majority coming from tuition and fees paid directly by parents.

Outcomes

Estelle James, Elizabeth King, and Ace Suryadi took advantage of the diversity in management and funding sources in Indonesian education to disentangle the effects of private funding and private management on educational efficiency. Their data set covered 68,000 public and private schools.⁶²

First, for the sake of argument, they assumed that the proportion of a school's budgets derived from parental financing was exogenous (i.e. that there were no unobserved factors that simultaneously influenced both the amount of parental financing and school efficiency). This represents a simple Ordinary Least Squares (OLS) regression model. In doing so, they found that higher parental financing generally increased efficiency for both public and private schools. They also found that the percentage increase in efficiency was generally inversely proportional to the initial level of private financing. In other words, increasing the share of total revenues made up by private financing had a larger impact when overall/initial private financing level was low than when it was already high to begin with. They also found that, under their exogeneity assumption, that optimum school efficiency was achieved when the balance of funding was 85 percent private and 15 percent government.

Statistical tests revealed, however, that they could not reject the possibility that the share of private financing was endogenous (i.e. that unobserved factors did indeed influence both the amount of parental financing and school efficiency). That meant the simple OLS estimate was biased. To control for the endogeneity problem, they adopted a two-stage least squares (2SLS) model. The first stage was to identify the factors that determined the parental share of total school expenditures. Those factors were then used as an instrumental variable for the second stage of the regression (the stage measuring the correlation between parental share of financing and efficiency). The only significant difference of using the 2SLS model was that the effect of increasing the share of school budgets paid for by parents never became negative: "The result from the endogenous model indicates that cost per student decreases over the entire range of Locshare [local/parental share of financing], but at a diminishing rate."⁶³ That is to say, a higher share of parental financing always leads to greater efficiency, but its marginal benefit diminishes as that share reaches 100 percent. This meant that their OLS estimate showing an optimum budgetary breakdown that included 15 percent government funds was in fact erroneous, and that zero percent government funds was in fact optimal for school efficiency.

Separately, James and her colleagues also concluded that “private management is more efficient than public management in achieving academic quality.”⁶⁴ So, for any given level of parental funding, a privately-run school is apt to be more efficient than a publicly-run school.

In 2000, Arjun Bedi and Ashish Garg looked beyond academic achievement and school efficiency to study the correlation between attendance at private secondary schools and later earnings. In line with what might be expected due to their selectivity and higher resources, raw data show that public schools in Indonesia do well compared to private schools. On average, their graduates enjoy higher earnings than those of private schools. Bedi and Garg did not have data to break down schools by funding source, but they did have a breakdown by type of private school. Their raw data showed that graduates of Christian private schools (which make up a small segment of the market) earn the most, followed by graduates of Islamic private schools and public schools (whose graduates' earnings are roughly comparable), followed by graduates of non-religious private schools, who earn the least.⁶⁵

These raw results were of course subject to selection bias because public school applicants were admitted based on their test scores, and because selection of school type was correlated with a number of other student and family factors. After controlling for the higher ability of students accepted into selective public schools, and for such family factors as parental education, Bedi and Garg found that non-religious private schools were by far the most effective, followed by Christian private schools, followed by public schools, with graduates of private Islamic schools earning the least. Taking private and public sectors as a whole, graduates of private sector schools out-earned those of public schools.⁶⁶ The raw earnings advantage enjoyed by selective public school graduates, the authors concluded, could “be attributed to the selective nature of the [public school] student intake and differences in student characteristics and *not* to the school-type attended.”⁶⁷

Some other findings of interest were that higher class-size lowered earnings of graduates of public schools, but actually led to higher-earnings for graduates of private schools. Non-religious private schools were also found to make more efficient use of their school term lengths than religious private schools.⁶⁸

Philippines

Conditions

There are three broad categories of secondary education in the Philippines: national public high-schools, local public high-schools, and private schools (which can be either religious or secular). During the 1988/89 school year, 63 percent of secondary students attended public schools, while the remainder attended private schools.⁶⁹ At that time, the government passed a law promising free secondary public schooling for all, and authorizing subsidies to private schools in areas without access to public schools. Budgetary constraints have hindered the implementation of this plan, and many children of secondary school age are either not attending school or have to pay tuition at private schools.⁷⁰ Total secondary enrollments have nevertheless increased, and stood at roughly 80 percent in 2000.⁷¹

In order to be able to award official degrees (and hence make their graduates eligible for higher education) private schools must be recognized by the government. Recognition is considered burdensome by many private school managers. Among the requirements for recognition are hiring of only government licensed teachers and allocating funds raised by any

tuition increases in accordance the government's 70-20-10 plan (70 percent of the increase must be spent on salaries, wages, and benefits for teachers; 20 percent on upgrading facilities, and the remainder can be considered return on the school owner's investment.)

In a study of education in poor regions of the country, Charisse Gulosino and James Tooley (2002) reported that public schools were not present or were under-serving the poor in many areas, and that fee-charging private schools were filling the gap. They noted that a few free places were usually available in these schools, indicating that the poor were subsidizing the truly destitute.

Outcomes

Emmanuel Jimenez and Marlaine Lockwood compared public and private student achievement in the mid 1980s.⁷² After controlling for student background characteristics and selection bias, they determined that private school students enjoyed an overall academic achievement advantage. This overall advantage broke down into substantial advantages in both English and in Filipino, but a slight disadvantage in mathematics. These differences persisted for all SES (socio-economic status) groups, but the magnitudes varied. For low-SES students, the disadvantage in mathematics became even smaller, the advantage in English became small, and the advantage in Filipino was unchanged. For high-SES students, the disadvantage in mathematics became slightly larger, the advantage in English became considerably larger, and the advantage in Filipino was unchanged.⁷³ These achievement findings led to the conclusion that private schools were more efficient than public schools given that their costs were roughly half those of government schools.⁷⁴

It has also been noted that graduates of private schools tend to earn more than public school graduates in the Philippines, but Futoshi Yamauchi and Joy Abrenica suggest that this advantage is reduced to statistical insignificance when student characteristics are held constant.⁷⁵

Thailand

Conditions

During the mid-1980s (when the research discussed below was conducted), private schools were tightly regulated by the central government. The core curriculum of private schools was prescribed by government guidelines, though some flexibility existed. Private schools were more likely, for instance, to offer foreign language instruction. Both public and private secondary schools administered entrance exams to applicants.

After 1977, private schools deemed by the government to be of "high quality" became eligible to receive subsidies of up to 40 percent of their operating costs, though this entailed a greater degree of government control. As a result of the extensive conditions attached to government subsidies, participation in the program dropped from 90 percent to 60 percent of eligible "high quality" private schools between 1977 and 1984.

All in all, the public system was extremely centralized during the 1980s. "All important decisions about curriculum, budget, and personnel," note Jimenez and Lockheed, "[were] taken in Bangkok, allowing for little variation at lower levels."⁷⁶

Outcomes

After controlling for family and student characteristic as well as selection bias, Jimenez and Lockheed found that private school students did enormously better than public school students.⁷⁷ A significant portion, but not all, of this difference turned out to be correlated with student peer groups. The idea behind peer group effects is that a student with a given set of personal and family characteristics is expected to do better academically if her classmates are brighter or from wealthier or better-educated families.

To determine a pure school-type effect, Jimenez and Lockheed added additional controls for peer group effects to their model, including classroom averages of students' mothers' education level, students' (pre-test) achievement levels, and the percentage of students' fathers working in professional occupations. After controlling for all these factors, the typical student still gained .45 of a standard deviation in achievement (generally considered a large effect size) from attending a private as opposed to a government school.

Some other findings included:

- public school students attending schools in richer communities did better academically, whereas community wealth had no effect on private school student achievement.
- Teaching credentials were not significantly related to achievement in public or private schools. (Sixty-one percent of all public school teachers in the sample were government certified to teach mathematics. The same was true of only ten percent of the private school teachers.)
- Private school teachers spent 25 percent more time maintaining order in the classroom, and this appeared to pay dividends in achievement, since "more teacher time devoted to maintaining order [was] positively related to achievement in private schools." In public schools, by contrast, additional efforts to maintain order were negatively related to achievement.
- Private school teachers were found to spend 50 percent more time quizzing and testing their students.

Interestingly, observed school characteristics accounted for the vast majority of the sectoral difference in achievement. When the researchers held teaching practices and school characteristics constant, the private school advantage was almost eliminated. In other words, if the sampled public schools could have consistently imitated the typical private school, their students would theoretically have been able to do virtually as well as private school students overall.

Finally, Jimenez and Lockheed estimated from the limited available evidence that private schools seem to have spent substantially less per student than government schools, suggesting that their better academic achievement was accompanied by higher efficiency as well.

Vietnam

Conditions

According to Paul Glewwe and Harold Patrinos private schools were historically common in Vietnam, existing in the North until 1954, and in the South until 1975.⁷⁸ With the Northern victory in 1975, all private enterprises in the South, including schools, were nationalized.

After *doi moi*, or "Renovation," in 1989, the establishment of private institutions was once again permitted. Since that time, public, semi-public, and private schools have existed side-by-side.

Public schools are operated by the state, and although they are meant to be fully state funded they in fact charge substantial fees. Semi-public schools, often run by local community groups, have their facilities and curricula provided by the state but are responsible for hiring and compensating their staffs, which they do by charging tuition. Private schools were autonomous and did not receive government subsidies as of 1994. Private schools accounted for between 1.2 and 2.1 percent of student enrollment in 1992/93 depending on level of education, while semi-public schools made up between .4 and 2.5 percent. The remaining students were enrolled in public schools. The cost to parents of sending their children to public schools ranges between 52 percent and 105 percent of the cost of sending them to private schools, depending on level of schooling (with upper secondary schooling being more expensive in the public sector). Except at the lowest (primary school) level of education, semi-public schools are more expensive than private schools, costing more than twice as much at the upper secondary level.⁷⁹

There is no clear pattern in the family characteristics associated with student enrollment in a particular kind of school. Contrary to some other countries, higher levels of parental education reduce the probability of private school attendance. Wealthier parents are more likely to send their children to private school, but less likely to send them to semi-public school. No correlation exists between private school enrollment and urban versus rural residence.

Outcomes

Glewwe and Patrinos, who studied inter-sectoral differences in later earning power, concluded from a simple regression that "there are probably (statistically significant at the 10 percent level) benefits to attending semi-public schools and definite benefits to attending private schools."⁸⁰ It should be noted, however, that their analysis did not control for family characteristics, presumably because correlations between family characteristics and school type were (as noted above) found to be small and inconsistent. Nevertheless, including these controls would have added weight to their conclusions.

Due to the fact that the cost of private secondary schooling was comparable to that of public schooling, the implication was that private schools may be more efficient, with respect to generating later earnings, than public schools.

Tanzania

Conditions

Access to public secondary schooling is tightly rationed in Tanzania, being contingent on high scores on an end-of-primary-school test.⁸¹ During the mid-1980s, public schools did not charge fees,⁸² but this changed over the ensuing decade. As of the late 1990's, the cost to parents of private secondary schools was still, on average, 50 percent higher than the cost of public schools. With regard to total spending, private schools have been estimated to spend between 69 and 86 percent of average public school expenditures per pupil.

Because they have lower direct costs to parents and are academically selective, public secondary school places are coveted by most families. Consequently, private secondary schools are viewed as an expensive alternative for those who fail to gain acceptance to public secondary school.⁸³ The bulk of secondary enrollment is in the private sector, which itself was mostly comprised of nonprofit religious and community schools during the mid-to-late 1980s. This pattern continues to the present, though for-profit schools began appearing in small but increasing numbers in the late 1990s.⁸⁴ Fifty-five percent of secondary students are enrolled in private schools of one type or another.⁸⁵

Regulation of private schools is extensive. All public and private schools follow the same national curriculum and are subject to central government inspections. Private schools must hire government certified teachers, and their fee policies are, in theory, controlled by the government, but violations of these requirements exist.⁸⁶ In keeping with the central government's significant role in education, self-reported school level control over the educational process is low across the board. Based on survey data from 1994 to 1996, only one quarter of all public schools and one half of all private schools indicated that they had any control over their own instructional practices (textbooks, curricula, schedules, etc.).⁸⁷

Outcomes

Jimenez and Lockheed studied the relationship between school type and achievement using data from the mid-1980s. They had extensive data on student and family characteristics which allowed them to control for students' aptitude and family background. They also controlled for selection bias, which was deemed to be a significant problem given the elite, academically selective character of public secondary schools.

After controlling for all of these factors, Jimenez and Lockheed found that the benefit of attending private school for a random individual was nearly one standard deviation (or 8.25 achievement test points), a very large effect. Another effect that the researchers calculated was the expected change in test score if a typical public school student were to switch to a private school. That student, they estimated, would enjoy a gain of 6.34 achievement test points, or three quarters of a standard deviation.⁸⁸ These findings appear to be consistent with earlier research.⁸⁹

No investigation of peer group effects was made, but the results for the public-to-private school switch perhaps shed some light on this question. Given the academically selective nature of public secondary schools, and the fact that private schools are seen chiefly as a fall-back for students who fail to gain entry to the public sector, it stands to reason that public school peer groups may have had higher aptitudes than private school peer groups. The lower gain that researchers found for a typical public school student switching to a private school, as compared to the gain expected for any student (public or private) chosen at random, would be consistent with the loss of a positive public school peer effect. Support for this theory can be found in the average mathematics and verbal aptitude scores reported for public and private school students. Both were higher for public school students, and the combined average was 51.5 for public students versus 47.6 for private students (out of a possible 100).⁹⁰

Other interesting findings include the fact that teachers' salaries were "positively and strongly associated with achievement test scores in private schools but inversely [though negligibly] related to scores in public schools," and that private students tended to "perform

better in larger classrooms while public students [performed] best in intermediate size classrooms (student-teacher ratio between 20 and 24)."⁹¹

Finally, though Jimenez and Lockheed lacked nationally-representative expenditure figures for the school sectors, they presented local sample observations showing no significant difference in public vs. private per-pupil expenditures existed.⁹²

Lassibille, Tan, and Sumra took a different approach to the question of public versus private sector effects in their 1999 study. They used a value-added approach based on aggregated school-level data from the mid-1990s, omitting any consideration of individual student or family effects, and ignoring selection bias. They concluded that public schools had higher average test scores than private schools, and that public schools were associated with higher average test score gains over the three year period studied.

Their raw test score findings are consistent with those of other researchers, and with the academic selectivity of public schools. Given that they do not control for student factors, family background, or public school selectivity, however, these results are not likely to isolate sectoral school effects. The value-added portion of their findings is potentially more revealing, but without an analysis to demonstrate that it is not confounded with student aptitude or family background, it too is only suggestive. Somewhat surprisingly, Lassibille et al. find academically selective public schools to be less efficient than private schools, even though they do not control for student or family variables or selection bias.

Lassibille and his colleagues also point out that the late 1980s and early 1990s were a period of "explosive" growth in the private education sector, and note that the start-up difficulties faced by new schools may have had a dampening effect on the performance of the private sector as a whole.⁹³ Evidence from their study on improvement trends in the public versus private sectors is consistent their view. While more than third of private schools improved their national performance ranking over the three-year period studied, the same was true of only a quarter of public schools.⁹⁴

Also of interest is their finding that private schools' ability to attract and retain students was tied to their performance. Private schools that improved their national ranking between 1992 and 1995 saw their enrollments increase by 18 percent over that period, while private schools whose rankings fell lost 3 percent of their enrollments. Changes in school rank had a smaller effect on public school enrollments, with all public schools seeing their enrollments increase whether their ranking had improved or deteriorated.⁹⁵ The growth in public school enrollments regardless of performance changes may have been tied to rising national enrollment levels among lower-income families (since public schools have substantially lower out-of-pocket costs to parents).

Colombia

Conditions

Private schools formerly made up a majority of secondary schools in Colombia, but, following an expansion of government provision from the late 1950s onward, they were reduced to enrolling 40 percent of all secondary students by the late 1980s.

Admission to private schools is generally academically selective, and as a result private schools are seen as being of higher quality than public schools.

Average per-pupil costs are roughly comparable between the sectors, with public schools spending about 10 percent more due mainly to higher teacher salaries, lower pupil/teacher ratios, and lower teacher/supervisor ratios.⁹⁶

In 1991, Colombia introduced a voucher program known as PACES that provided over 125,000 pupils from poor neighborhoods with vouchers covering about half the cost of private secondary school. These vouchers were renewable annually provided that students maintained a satisfactory level of school performance. In many parts of the country, the vouchers were distributed by random lottery to eligible applicants. To be eligible, students had to come from families in the bottom third of the SES distribution.⁹⁷

Outcomes

Using data from the 1980s, Jimenez and Lockheed compared public versus private school effects on student achievement, controlling for both student/family characteristics and the selection bias caused by parental choices and the selective admissions policies common among private schools. After incorporating these controls, Jimenez and Lockheed concluded that the typical student did benefit academically from attendance at private school. They also estimated that the average public school student, had he transferred to a private school, would have benefited academically, but to a lesser degree. The biggest inter-sectoral academic achievement difference they estimated was for the typical private school student. In other words, students who shared the family and personal characteristics typical of private school students gained more by actually attending private schools than did students with different characteristics.⁹⁸

A notable correlational finding was that larger classes had a negative effect on achievement in public schools but not in private schools. In fact, within the normal range of class sizes, private school students in bigger classes outperformed their peers in smaller classes.⁹⁹

Angrist, Bettinger, Bloom, King, and Kremer used data from the PACES program to conduct a natural education voucher experiment—one of the few (if not the only) instances of a randomized field trial outside the United States. This allows for more reliable estimation of school type effects due to the fact that randomization controls not only for observed characteristics of students but also for any unobserved characteristics that might also affect achievement.

After three years in the program, Angrist and his colleagues determined with a simple OLS model that voucher lottery winners were scoring .2 standard deviations better than students who had participated in the lottery but had not won a school voucher. Lottery winners were also 10 percent more likely to have completed the 8th grade. These gains, though non-negligible in magnitude, were only moderately statistically significant due to small sample size.¹⁰⁰

The researchers observed, however, that only 90 percent of voucher winners actually used the vouchers to attend private schools, and that 24 percent of voucher losers received scholarships from other sources. Since the relevant policy question to be tested was whether or not scholarship use (i.e. subsidized private school attendance) had a net educational benefit, they modified their model to account for these observations. Using lottery win/loss status as an instrument for actual scholarship use in a two-stage least squares (2SLS) model, they found that scholarship use actually produced gains that were fifty percent larger than the muddled gains suggested by the simple OLS estimate. This was true both for academic achievement and educational attainment. The actual effect of scholarship use (whether the scholarship was from the PACES lottery or from another source) was a 0.3 standard deviation gain in test scores and a 15 percent increase in the likelihood of completing the 8th grade.¹⁰¹ The effect on girls was also found to be stronger than that on boys.¹⁰²

Dominican Republic

Conditions

The Dominican Republic has three main types of schools: public, ordinary private, and elite private. Ordinary private schools are often operated for profit, tend not to have selective admissions policies, and generally spend much less per pupil than public schools. Elite private schools, called "Escuelas Con Facultad," are authorized by the Ministry of Education to administer official examinations. Almost all elite schools are non-profits, and three quarters are affiliated with religious denominations. Fees at elite private schools are similar to average public school per pupil expenditures. In order to obtain and preserve their special status, elite schools must follow state education standards.¹⁰³ Between the mid 1980s and mid 1990s, private schools enrolled roughly a third of secondary school students.¹⁰⁴

Outcomes

Here again, Jimenez and Lockheed used a data set from the mid 1980s that included achievement scores along with student and family characteristics including measures of wealth, parental education, and parental occupation. After controlling for those characteristics and for selection bias, they found that students from both kinds of private schools outperformed their public school peers. The advantage for both sectors was substantial, but in the case of elite private schools it was very large (1.18 standard deviations).

Given the very different peer characteristics of elite private schools, however, the presence of peer-effects seemed likely. After controlling for peer group characteristics (classroom averages of family income, mother's education, father's white-collar job status) Jimenez and Lockheed concluded that ordinary private schools still had a positive effect on achievement, whereas the effect of elite private schools actually turned negative and significant.

Interestingly, it was the lower-SES students who were estimated to gain the most from attending ordinary private schools. The typical public school student (who has lower SES than students in other school types) would gain more than a quarter of a standard deviation in achievement by transferring to an ordinary private school. The typical student already enrolled in an ordinary private school does better there than he would in a public school, but

only by .11 of a standard deviation. The benefit estimated for the typical elite private school student (high SES) transferring to an ordinary private school is negligible.¹⁰⁵

Since ordinary private schools were found to spend roughly 1/3 less than public schools, they were significantly more efficient. Jimenez and Lockheed estimated that the cost-per-mathematics-test-score-point in ordinary private schools was roughly half that of public schools.¹⁰⁶

Chilean Government Subsidy Program

Conditions

In 1981, Chile's military government drastically revised the country's public funding of education. The system it introduced allocated subsidies to both public and participating private schools on the basis of enrollment, allowing the two sectors to compete on more equal footing for the patronage of Chilean families, beginning in 1982. Following the introduction of the program there were three types of schools in Chile: municipal public schools ("MUN"), private subsidized schools ("PS"), and private non-subsidized schools (private paid or "PP").

Though Chile's education system is usually referred to as a national voucher program, it differs from the archetypal conception of school vouchers in two ways. First, subsidies do not go to parents but rather are awarded to schools based on their average daily attendance over the three preceding months. Second, the subsidies do not make up the entirety of government spending on public schools. Many MUN schools have had soft budget constraints, which is to say they have spent more than the per-pupil allotment provided by the central government. To make up the difference, they have received additional financing from their municipalities.¹⁰⁷ More recently, many have also received additional funds from the central government over and above the per-pupil subsidy.

Many pre-existing private schools whose tuitions exceeded the per-pupil subsidy amount elected not to participate in the program, and continue to finance themselves solely through tuition. These PP schools enrolled 6 to 8 percent of students in the years before the subsidy program was introduced,¹⁰⁸ and have enrolled 10 or 11 percent of students in recent years.

From 1982 to 1993, the per-pupil subsidy constituted the entire budget for PS schools, as they were prohibited from charging tuition. After 1993, per-pupil subsidies could be supplemented by tuition payments at private schools, with the government subsidy declining on a sliding scale based on the amount of tuition being charged. The higher the co-payment charged by PS schools, the lower the fraction of the government subsidy they are eligible to receive. About 40 percent of PS schools had adopted this new funding mechanism by 1996, comprising about 65 percent of total PS school enrollment (hence the larger schools were the first to take advantage of the program).¹⁰⁹

Subsidies to MUN and PS schools vary based on several factors, including the number of enrolled special education students, the level of education (primary versus secondary), and a variety of school-type programs based on areas of subject concentration or extension of the school day. These latter programs tend to be concentrated in MUN schools, and Sapelli and Vial point out that this means poorer families receive a lower net subsidy if they send their children to independent schools.¹¹⁰

A recent UNESCO study of high-performing schools in Chile reports that MUN schools and PS schools differ systematically in both their facilities and the degree to which they maintain those facilities.

In the government-subsidised private schools the infrastructure is better, more modern and more spacious compared to the municipal schools visited. The private subsidised schools are in buildings made of reinforced concrete and on two levels, first and second floors. In contrast, the municipal schools are one story in groups of 4 or 5 rooms. They are “temporary structures designed to last no more than 15 years, and built in the 1960s.”¹¹¹

The study notes that while schools in both sectors show concern for cleanliness, proper lighting and ventilation, and spaciousness of classrooms, MUN schools have “more limitations in these areas.”¹¹²

In 1981, 22 percent of students were enrolled in non-government schools. That percentage had more than doubled, to 46 percent, by 1999.¹¹³

Raw Outcomes

Since 1988, students in MUN, PS, and PP schools have been administered tests in Spanish and mathematics under the government's SIMCE testing program. Until 1997, the available test score data were either aggregated at the school level (rather than providing test scores of individual students), or were unaccompanied by individual-level data on students' family background. All research based on pre-1997 data is thus apt to be less precise than research based on more recent per-pupil data.

One finding that has been consistent across all periods and all studies is that the raw test-scores break down by school type as follows: they are highest among students in PP schools, next highest among PS schools, and lowest among MUN schools. From the mid-1990s onward, as some PS schools began charging parents directly for a portion of the cost of their children's education, these schools' test scores were found to be above those of subsidized schools that did not require a parental co-payment.

Vegas, for example, finds that PP school students score two full standard deviations (an very large difference) above MUN school students, that Catholic subsidized schools score 4/5ths of a standard deviation above MUN schools, and that secular private schools score ½ a standard deviation above MUN schools. Sapelli and Vial report the following raw score averages from 1998: MUN, 238; PS (no co-pay), 248; PS (co-pay), 260.5; PP, 299.5.¹¹⁴

The rate at which students repeat grades also differs from one school type to the next. Patrick McEwan found that the percentage of students having repeated at least one grade was 29 percent in MUN schools, 23 percent at secular PS schools, 14 percent at Catholic PS schools, and 11 percent at PP schools.¹¹⁵

Because student socio-economic status is correlated with school type, and because selection into particular school types is also correlated with many other factors, these raw figures cannot be used to draw conclusions about the relative effectiveness or efficiency of the different school types. The sections that follow describe various attempts at controlling for some or all of these factors to isolate the effects of school type on educational outcomes.

Simple OLS Regressions of Academic Outcomes By School Type

Until recently, the most common mathematical model applied to the Chilean data was an Ordinary Least Squares regression controlling for family income and parent's level of education. Studies of this kind have shown mixed results. In 2000, using school-level data, McEwan and Carnoy found a substantial and statistically significant positive effect favoring PP schools. Two years later, however, McEwan found no significant benefit from attendance at these schools.¹¹⁶ Vegas, corroborates the earlier McEwan and Carnoy result, finding a large (1 standard deviation) positive effect for unsubsidized schools.¹¹⁷

McEwan generally finds a small, statistically significant benefit to attendance at PS schools, but concludes that this is due entirely to the benefit of attending Catholic subsidized schools—secular PS schools, he finds, have no significant effect on student achievement. These results are similar to those of Vegas, who found a ¼ standard deviation effect size for Catholic subsidized schools, but no effect for secular PS schools.

Correcting for the Problem of Selection Bias

As noted earlier, OLS estimates assume that selection into a particular school type is exogenous, which is to say there are no unobserved variables correlated with both parents' selection of school type and student outcomes. If this assumption is wrong, then the results of OLS estimates will be biased.

Dante Contreras explored this issue in 2002, using private school availability (which differs substantially from region to region) as an instrument for school choice. The hypothesis he tested was that the availability of private schools in a given area was correlated both with the likelihood of actually choosing a private school and with test scores. His findings confirmed the hypothesis, revealing that OLS estimates were indeed biased. Under Contreras' two-stage least squares model, the benefit of attending a PS school more than doubled (compared to the biased OLS estimate). PP schools were found to have an even larger benefit than PS schools. From these findings, Contreras concluded that "the previous literature has overestimated the impact of parental education and underestimated the impact of the voucher system in providing better education."¹¹⁸

Sapelli and Vial also controlled for selection bias using variables known to be associated with test scores, including region variables that captured the effect of school availability on school selection. After all these controls, they found that a student taken at random from the entire population would not gain significantly from attendance at a private school (this scenario is known as the "Average Treatment Effect" or ATE). Separately, they compared how well the typical PS school student performed in his current school versus how well he would be expected to perform in an MUN school. In this scenario (known as "Treatment on the Treated" or TT), they did find a significant benefit to attendance at a PS school. Importantly, they noted that the TT effect persisted at all income levels. This finding is consistent with the idea that parents who chose private schools do so because they think their children will do better there, and that they are in fact correct in so thinking.¹¹⁹

What makes the Sapelli and Vial paper unique in the Chilean "voucher" literature is that it goes on to break out the effect of varying per-pupil expenditures on sectoral differences in achievement. As noted above, many MUN schools spend more per pupil than the central government subsidy, receiving additional financing from their municipal governments. While

evidence for an overall positive relationship between expenditures and achievement in public schools is weak in rich countries, there are several studies finding such a link in less developed countries (where public school spending levels are quite low to begin with).¹²⁰

To ascertain the effect of varying MUN school expenditures, Sapelli and Vial break MUN schools down into 5 quintiles, corresponding to the total amount they receive from local and national government sources over and above the basic per-pupil subsidy. In the first quintile, MUN schools spend an average of 112 percent of the per-pupil subsidy, whereas in the fifth quintile they spend an average of 171 percent of the per-pupil subsidy. MUN schools in the first quintile are thus argued to be those whose expenditure levels are most comparable to the average expenditure among PS schools.

In analyzing these expenditure-grouped results, the researchers found that the Average Treatment Effect for attending a PS school was small but positive and significant for the first three quintiles, slightly negative in the fourth quintile, and very substantially negative (1.5 standard deviations) in the fifth quintile (where MUN schools are spending 71 percent more than the per-pupil subsidy). Perhaps also accounting for some of the dramatic jump at the fifth quintile is the fact that MUN schools in this group are more likely to be academically selective in their admissions.

The effect of Treatment on the Treated (i.e. how much the typical PS school student is expected to gain from actually attending a PS school) follows a similar pattern but is much larger in the first three quintiles. In quintile one, where MUN and PS schools are asserted to have similar per-pupil spending, the TT effect is half of a standard deviation. The TT effect is still very large and negative in quintile five.

Summarizing their results, Sapelli and Vial conclude that higher-spending MUN schools have skewed the results of earlier studies, causing them to underestimate the positive impact of PS schools. There is, however, a potential problem with their analysis, in that it does not also factor in any additional funds spent by those PS schools that receive parental co-payments under the *Financiamiento Compartido* program. The reason for this omission, according to one of the researchers,¹²¹ was practical: per-school data were not available on the amount of funds PS schools raised through parental co-payments. Concluding that the average level of co-payment funding was less than the average level of additional expenditure by MUN schools, they felt that their analysis was fundamentally sound, but in the absence of PS per-school co-payment data, this remains an open question.

In an earlier paper, Sapelli and Vial calculated a three-way comparison of MUN, PS, and PP schools controlling for school availability and student/family characteristics. They concluded that PP schools had a moderate to large ATE when compared to MUN schools (1/3 of a std. dev. in language and 1/2 in math), and that PS schools had a smaller but still statistically significant effect (1/5 of a std. dev. in both subjects).¹²² Interestingly, children from the poorest decile of families gained far more in mathematics (nearly 9/10 of a standard deviation) from attending PP schools instead of MUN schools than any other group. Given their very limited financial means, it must be surmised that these students had their tuitions underwritten by the schools.¹²³

It should be noted that none of the findings reported in this section had controls for peer group effects.

Redistribution of Students—Competition through Creaming?

In their 2002 paper, Hsieh and Urquiola assert that the Chilean subsidy program has not been responsible for any improvement in overall student achievement, having instead simply redistributed high-SES (and hence generally higher achieving) students to the private sector.¹²⁴

To make their point, they concentrate on data from the first seven years of the subsidy program, arguing that this is the period during which it had its largest and strongest effect.¹²⁵ Specifically, the biggest shift out of MUN schools and into PS schools occurred before 1990, though it continued, at a slower pace, thereafter.

One of Hsieh and Urquiola's first observations is that, in 1988, public school test scores were lower in communities with higher private sector enrollment.¹²⁶ They suggest that this is consistent with the idea that PS schools "skimmed" off the best students (the "cream") from public schools, causing MUN school test scores to fall. They also acknowledge that the direction of causality may be reversed: i.e. that areas in which MUN schools performed especially poorly may have driven a greater percentage of parents to seek alternatives in the private sector.

They attempt to disambiguate between these two causal explanations by looking at trends over time, showing an association between rising PS enrollment rates and declining MUN performance. This, however, is inconclusive. Continued "skimming" could cause a continued decline in MUN scores, but continued poor MUN performance could also perpetuate a continuing out-migration from MUN to PS schools. Both causal explanations remain valid possibilities, as does some combination of the two.

Hsieh and Urquiola's next observation is that, in 1988, more established PS schools had higher average SES than recent start-ups.¹²⁷ This pattern, they point out, is consistent with the idea of the "early bird getting the worm" in the cream skimming process, i.e. that the first PS schools on the scene attracted the highest SES students, leaving fewer such students for later entrants to the market. This is certainly consistent with the notion that high SES families would likely be better informed of their educational options than low SES families, and hence more apt to be early-adopters of the newly introduced PS school option. It is also consistent, however, with the fact that private schools may have opened in the most commercially viable locations first—i.e. those with the highest population densities—and only then begun to expand into lower density areas as the urban markets became saturated. Since population density (urbanicity) and SES are correlated, this would not necessarily connote creaming on the part of PS schools.

The SES distribution between PS start-ups and their more established competitors is a key premise in a central argument of their paper: that PS schools and the Chilean subsidy program as a whole do not contribute to higher overall student achievement, but instead simply shuffle around the high SES students and thereby do nothing more than change which schools end up with the high test scores.¹²⁸ To bolster their argument, Hsieh and Urquiola observe that average 1988 test scores were somewhat higher in established than in recently-created PS schools.¹²⁹

To argue that average educational outcomes for all students were not improved by the introduction of the subsidy program, Hsieh and Urquiola present four other empirical findings:

- After controlling for observable school and community characteristics, communes (districts) with a higher private enrollment share do not differ significantly from other communes in math scores, repetition rates, or student attainment (i.e. years of school completed).¹³⁰
- After controls, communes with higher growth in private enrollment share between 1982 and 1988 do not differ significantly in educational outcomes from communes in which private enrollment grew more modestly.
- Nationwide, "average test scores did not change," though repetition rates did fall somewhat and school attainment did rise somewhat. (Though they note these last two findings are consistent with national income growth during the period).¹³¹
- Chile dropped one place in the international ranking of countries participating in the 1970 and 1999 international tests of mathematics and science

Taking the last observation first, a comparison between the Chilean and U.S. performance trends on these international tests would be, if anything, an argument for the United States to adopt Chile's private school subsidy program. While Chile dropped by one place, the United States dropped by three, while having maintained throughout the period a 90 percent public sector education monopoly.

The first three of the above bullet points must also be considered in light of the period examined by Hsieh and Urquiola. The years 1982 to 1988 were a period of radical change in the Chilean education system, during which a disproportionate share of PS schools were newly formed, and during which many public schools were undergoing the shock of rapidly hemorrhaging enrollments. The growing pains suffered by newly formed schools could easily have impeded their ability to improve student achievement, and the relatively unexpected losses of students in the public sector could have temporarily depressed MUN effectiveness.

If that indeed was the case, and if the subsidy system began to function as intended as the turmoil of its early years was overcome, two predictions would follow. First, test scores in the subsidized sector should have begun to improve after 1988, as PS schools created during the early-to-mid-1980s either matured and improved or were driven out of business by those that did. Second, the test score difference between schools that predated the subsidy program and those created to take advantage of that program should have diminished or even disappeared over time.

Addressing the first of these predictions is difficult because the SIMCE testing system was not guaranteed to be comparable from one year to the next until 1997.¹³² To whatever extent trends in SIMCE scores do happen to represent actual achievement changes over time, however, they suggest the steady improvement of all three school types between 1988 and 1996 (see Table 1).

Table 1. Average 4th Grade SIMCE Scores by School Type, 1988-1996

Type of School	1988	1990	1992	1994	1996
Municipal	49.25	56.70	63.85	64.43	68.00
Private Subsidized	56.35	58.80	70.15	70.66	73.65
Private Unsubsidized	76.15	80.05	86.05	85.07	85.85

Source: Françoise Delannoy, *Education Reforms in Chile, 1980-98: A Lesson in Pragmatism*. World Bank Country Studies, Education Reform and Management Publication Series, vol. I, no. 1, June 2000, p. 39. Available on-line at: <http://www1.worldbank.org/education/globaleducationreform/pdf/delannoy.pdf>.

In an attempt to extract more reliable conclusions from the SIMCE data, Francisco Gallego came up with the idea of examining the MUN and PS scores as a fraction of the PP scores in any given year.¹³³ That approach, presented in Table 2, shows MUN and PS schools both closing the gap with PP schools over time. This is suggestive of improvement in the subsidized school sector, at least with respect to the more elite paid private school sector.

**Table 2: Trends in SIMCE Scores by School Type
as a Percentage of the Scores of Unsubsidized Private Schools**

Type of School	4 th Grade						8 th Grade					
	1988	1990	1992	1994	1996	1999	1989	1991	1993	1995	1997	2000
Municipal	64.7	70.8	71.9	74.4	77.9	81.1	68.5	69.1	71.7	72.9	76.4	80.5
Private Subsidized	74.0	73.4	78.8	81.0	82.9	87.4	75.3	75.0	78.7	79.5	82.5	86.4

Source: Gallego, "Competencia," p. 6.

The second prediction also appears to be borne out by the evidence. According to Sapelli and Vial:

Pre reform schools are significantly better than post reform schools in 1989, but the difference halves in 1993 and disappears in 1997. In 1997 both pre and post reform [private] schools are significantly better than municipal schools.¹³⁴

The evidence discussed earlier also suggests that PS schools do as well or better than MUN schools even after controlling for student SES and selection bias, and these schools would not exist were it not for the introduction of the subsidy program.

The preceding analysis suggests that Hsieh and Urquiola were correct in noting that PS schools enroll students with somewhat higher SES. It also suggests that these researchers were mistaken in inferring from the SES difference that the subsidy program has not been associated with improved student achievement in the long term. The central flaw underlying their mistaken inference was their heavy focus on the tumultuous early years of the program.

Effects of Competition on Public and Private Schools

Performance does appear to have gone up in subsidized schools, and there are some positive ATEs and especially TTs associated with PS versus MUN schools, but it remains to be seen if these effects have anything to do with market forces. Do competition and parental choice improve PS or MUN school performance? Hsieh and Urquiola present data for the early years of the program that suggest the answer may not only have been no in the case of MUN schools, but that the growth of PS schools could actually have hurt MUN school performance.¹³⁵ Was this finding only a symptom of the developmental stage of the program, or does it persist? Are pseudo-market forces now associated with improved school effectiveness? Those questions were addressed in a recent paper by Francisco Gallego.

Using school-level data for 1994 to 1997, and controlling for average student and family characteristics and selection bias, Gallego concluded that the greater levels of competition faced by PS schools, and their greater responsiveness to competitive pressure, explains an important percentage of their superior performance with respect to MUN schools. Gallego also observed that, within the MUN sector, greater levels of competition were associated with improved performance, but to a lesser degree than is found in the PS sector.¹³⁶

Gallego attributes the weaker MUN school response to competition to the different incentive structure that obtains in that sector, such as their greater use of government funds not tied to per-pupil attendance rates. Since the option of charging parental co-payments among PS schools was only introduced in 1993, and since only 40 percent of schools had adopted this practice by 1996, the incentive for PS schools to better serve their clients may have increased since the period analyzed by Gallego.

U.S. Private Subsidy Programs

Conditions

Over the past decade, a number of philanthropists and foundations have begun offering financial assistance (often called "scholarships," despite their lack of academic selectivity) to low-income families who wish to send their children to private schools. In several cases, these scholarships have been awarded through lotteries, allowing the effects of the programs to be evaluated as randomized field trials. A key advantage of the random allocation of students into lottery winners and losers is that it controls not only for observable differences in student and family characteristics, but also for unobservable differences. Due to randomization, researchers can be fairly confident that scholarship winners and losers do not differ from one another on average in any respect other than their receipt (or not) of a scholarship.

Virtually all private scholarship programs have been located in urban areas, and their sizes have tended to be quite small (one or two thousand students is typical). While the nationwide Children's Scholarship Fund (CSF) provides financial aid to 40,000 pupils, these too are distributed in modest-sized groups, mostly in major cities, around the country.¹³⁷

Private schools attended by scholarship students typically spend substantially less than public schools in the same neighborhoods. Since it can be argued that U.S. public schools undertake a wider range of activities than private schools, it has been suggested that public and private school expenditures are not directly comparable. To investigate this question, William Howell and Paul Peterson examined the case of New York City in detail. They eliminated from their budgetary comparison all public school costs items that are absent (or at least noticeably lower) among most private schools (including transportation, special education, school lunches, and other ancillary services). They also excluded the "very substantial costs of the educational bureaucracy that manages the operations of the public schools at the city, borough, and district level." According to Howell and Peterson, even after "expenditures for all of these items are subtracted, public schools still spent more than \$5,000 per pupil each year, more than twice the \$2,400 per pupil spent by Catholic schools, fully 72 percent of which comes from tuition."¹³⁸

Outcomes

In their book *The Education Gap*, Howell and Peterson studied academic effects of three private scholarship programs (in Dayton, New York City, and Washington, DC). They also compiled evidence on parental satisfaction levels in these three cities as well as among CSF participants around the country.

Effects of participation in the program varied starkly by race. White and Hispanic students saw no significant change in their academic achievement while African American students gained .18 std deviations after 1 year, .28 after two years, and .30 after 3 years of participation.¹³⁹ These averages, it should be noted, mask wide disparities from one city to another and from one year to another.

Scholarship programs also allowed recipients to attend schools with vastly lower rates of violence and classroom disruption, more frequent and deeper parent-school communication, and a greater availability of in-school tutoring and after-school services (despite their expenditures being roughly half those of comparable public school expenditures). It is not clear, however, if these private school characteristics would persist under a greatly expanded scholarship program.

Consistent with some of the international findings reported earlier, there was some evidence that achievement and class size were positively linked in private schools (i.e. larger classes were associated, weakly, with higher test scores).¹⁴⁰

On all 16 measures of parental satisfaction gathered by the researchers, private school parents expressed more positive views. On 15 of those 16 measures, the percentages of parents "very satisfied" with particular school characteristics were two-to-four times higher than the corresponding public school parent percentages. The only measure where the private school advantage was smaller was school location (in which private school parents were very satisfied 40 percent of the time versus 32.6 percent of the time for public school parents). To achieve an overall metric of parental satisfaction, Howell and Peterson aggregated parental answers to all the sub-questions, using all answers from "very dissatisfied" to "very satisfied," and then calculated an effect size of scholarship use in terms of standard deviations. The private school effect size for the three city voucher programs was .92 of a standard deviation. This was very similar to the .95 effect size found in the national CSF program, and both are very large effect sizes.¹⁴¹

It has been suggested that this difference could be due to a "reverse placebo effect" in which parents who participate in the voucher lottery but do not win vouchers become embittered toward the public schools in which they are forced to remain. This theory is contradicted by the evidence. In addition to the satisfaction data collected in the years after the lottery was held, data was also collected *before* the lottery was held. If the "reverse placebo" argument was right, satisfaction should have dropped when the control group parents found out that they had lost the lottery. Instead, there was a modest increase in their satisfaction with their public schools, though, as noted above, their satisfaction was dramatically lower than that of those who ended up in private schools.¹⁴² Howell and Peterson also find that voucher applicants were not substantially more dissatisfied toward their public schools than the typical public school parent. As Howell and Peterson report for the cities they studied, and as RAND researchers conclude for the nation as a whole: "those who used

vouchers expressed an enthusiasm for their new private school unmatched by the typical public school parent."¹⁴³

U.S. Publicly Funded Voucher Programs

Conditions

In addition to the privately-funded scholarship programs discussed above, the United States also has publicly-funded voucher programs in Cleveland, Milwaukee, and Florida. The Cleveland and Milwaukee programs offer vouchers to a small subset of low-income families living in those cities, while the Florida program offers vouchers to children statewide who are currently enrolled in public schools categorized as "low performing." The oldest of the programs is Milwaukee's, which enrolled roughly 11,000 children from across the metropolitan area in 2001-2002. It is limited to 15 percent of the enrollment in the Milwaukee Public School district. Cleveland's program had approximately 4,500 students in 2001-2002, while the Florida program had 47.¹⁴⁴

Outcomes

Because vouchers were distributed by random lottery, Milwaukee's program could be evaluated as a randomized field trial (RFT), obviating the need to control for student characteristics or selection bias. Two randomized field trial analyses were performed using Milwaukee data from the mid 1990s, when the program was about half its current size. The first analysis, done in 1996 by Jay Greene, Paul Peterson, and Jing-Tao Du, found statistically significant gains (of slight to moderate magnitude) among voucher users in both mathematics and reading.¹⁴⁵ Cecilia Elena Rouse, of Princeton University, concluded in her 1997 analysis that voucher students' gains in mathematics were significant, but that there was no significant difference between the treatment and control groups in reading.¹⁴⁶

Prior to the findings cited above, John Witte, the government-appointed researcher for the Milwaukee voucher program, compared the performance of voucher students to a subset of public school students (rather than to the natural control group of lottery participants who did not win a voucher). In his final non-RFT study Witte found only negligible academic differences between voucher students and his public school comparison group.¹⁴⁷

During the period in which data for all of the above analyses were collected, 80 percent of voucher students were concentrated in just three Milwaukee private schools, the program served just a few hundred children, and voucher recipients were forbidden to enroll in religious schools.

With regard to the Cleveland program, there is some question as to whether or not vouchers have consistently been handed out on a random lottery basis, allowing for RFTs comparing lottery winners and losers. According to a researcher at Indiana University, whose Center for Evaluation (ICE) has been hired to assess the program, vouchers are indeed distributed by random lottery.¹⁴⁸ According to Howell and Peterson, however, "an RFT never was possible" in Cleveland. "Although vouchers initially were awarded randomly," they write "a variety of administrative problems precluded holding an effective lottery; in the end, vouchers were offered to all applicants."¹⁴⁹

To date ICE researchers have followed two cohorts of voucher students. The final report on the first cohort found that voucher students were "significantly more likely to be from families of low income, headed by a single mother, and African-American than their public school counterparts."¹⁵⁰ It also concluded that "after controlling for initial differences in academic achievement and a limited set of demographic and classroom factors, scholarship students achieved at significantly higher levels than their public school counterparts in language and science. However, this was true only for students who attended private schools that existed prior to the Scholarship Program and did not apply to students attending private schools established solely to serve scholarship students." This result is of course similar to that observed in the Chilean subsidy program, wherein newly created private schools performed less well in their initial years than did pre-existing private schools. Data from the Chilean case indicate that this disparity was gradually reduced to zero over time, but such long term data are as yet unavailable from the Cleveland program. The ICE team has ceased to evaluate the ongoing performance of this cohort.

ICE's study of a second cohort in the Cleveland program found no statistically significant difference in student achievement at the end of grade two among any of four groups (those who had used vouchers since Kindergarten, those who had used them only since the first grade, those who applied for but did not win vouchers, and those who did not apply for a voucher). The ICE team also noted that rejected voucher applicants began 1st grade at a disadvantage in language compared to voucher students who had attended private kindergarten, but that the rejected voucher applicants managed to mostly close this deficit during the first grade.

All researchers who have studied parental satisfaction among voucher recipients in Cleveland and Milwaukee have found voucher families to be significantly more satisfied with their schools than either applicants who did not win vouchers or public school parents who did not apply for vouchers.

Assessing the Five Feature Theory in Light of the Empirical Evidence

Table 3 provides a broad summary of the findings reported in the previous section.

Table 3: Number of Findings on Sectoral Differences in Educational Conditions and Outcomes

	Private Advantage	No Sig. Difference	Public Advantage
Achievement	20 ¹	5 ²	2 ³
Efficiency	10 ⁴	-	1 ⁵
Parental Satisfaction	4 ⁶	-	-
Order/Discipline	3 ⁷	-	-
Graduates' Earnings	2 ⁸	1 ⁹	-
Condition of Facilities	2 ¹⁰	-	-

¹Studies include: Kingdon (India, aided private vs. public); Bashir (India, unaided private vs. public); Alderman et al. (India, aided private vs. public); James et al. (Pakistan); Jimenez and Lockheed (Indonesia); Jimenez and Lockheed (Philippines); Jimenez and Lockheed (Thailand); Jimenez and Lockheed (Tanzania); Angrist et al. (Colombia, PACES voucher program); ; Jimenez and Lockheed (Columbia); McEwan, 2000 (Dominican Republic, PP); McEwan, 2002 (Chile, PS and Catholic); Vegas (Chile, PS and Catholic); Contreras (Chile, PS); Sapelli and Vial, 2002 (Chile, PS); Sapelli and Vial, 2001 (Chile, PS and PP); Rouse (US, voucher); Howell and Peterson (US, private scholarships); Greene et al. (US, voucher); Metcalf et al., 1999 (US, voucher, pre-existing private schools).

²Studies include: McEwan, 2002 (Chile, PP); McEwan, 2002 (Chile, secular PS); Vegas (Chile, secular PS); Metcalf et al., 2001 (US, voucher, two newly-created schools); Witte et al. (US, voucher).

³Studies include: Lasibille et al. (Tanzania); Metcalf et al., 1999 (US, voucher, public schools vs. two newly-created private schools)

⁴Studies include: Kingdon (India, aided private vs. public); Kingdon (India, unaided private vs. public); Bashir (India, aided private versus public); Alderman et al. (Pakistan); James et al. (Indonesia); Jimenez and Lockheed (Philippines); Jimenez and Lockheed (Thailand); Lasibille et al. (Tanzania); Jimenez and Lockheed (Dominican Republic); Howell and Peterson (US, private scholarships).

⁵Studies include: Bashir (India, public versus unaided private schools).

⁶Studies include: PROBE (India); Howell and Peterson (US, private scholarships); Greene et al. (US, voucher); Metcalf et al. (US, voucher).

⁷Studies include: PROBE (India); Jimenez and Lockheed (Thailand); Howell and Peterson (US, private scholarships).

⁸Studies include: Bedi and Garg (Indonesia); Glewwe and Patrinos (Vietnam).

⁹Studies include: Yamauchi et al. (Philippines).

¹⁰Studies include: PROBE (India); Sandra Cusato and Juan Carlos Palafox (Chile, high-performing PS vs. MUN schools).

While this table is useful in revealing an overall pattern in the conditions and outcomes of private versus public schools, it glosses over important variations within sectors, and fails to identify the determinants of those variations. A series of separate analyses identifying these determinants and the variations they cause is presented below. The conclusions of those analyses will then be used to evaluate the relevance and accuracy of the theoretical predictions laid out at the beginning of this paper.

The Impact of Parental Vs. State Funding

With few exceptions, schools that are funded chiefly or entirely through tuition outperform schools that are funded chiefly or entirely by government agencies. Holding other factors constant, every increase in the share of school budgets that is raised through tuition and fees contributes to increased achievement. There is, however, a diminishing return as the total share of the budget accounted for by parental contributions rises. Requiring a modest parental co-payment where none was previously required is thus apt to be of greater benefit than raising tuition from 80 percent to 100 percent of total school income.

The one notable exception to this overall pattern comes from Bashir's study of Tamil Nadu (where the government had imposed barriers to the creation of unaided schools), but those results appear not to be representative of Indian unaided schools as a whole, or even of unaided schools in Tamil Nadu itself (if, as seems to have been the case, less expensive unrecognized unaided schools were not considered).

Another indication that direct parental funding is associated with improved outcomes can be seen in the distribution of spending/achievement correlations. The association between higher spending and higher achievement is very common among private unaided schools, less common among aided private schools, and rare among government schools.

The Impact of Private Vs. Government Management

Holding constant the level of direct parental financing, private schools are generally more effective than public schools, implying a separate effect due to management structure and incentives.

Private schools, particularly those charging tuition, tend to have lower average per pupil expenditures than public schools, often a great deal lower. They also allocate their funds differently. When not forbidden from doing so by law, private schools are much less likely to hire government-certified teachers. They also pay lower salaries, and they spend a smaller percentage of their budgets on salaries (placing greater importance, for example, on textbooks and teaching materials). Private schools seem to make wiser choices, and to get value for their

money. The percentage of credentialed teachers in a school is not generally correlated with student achievement, and teachers' salaries appear to be positively and strongly correlated with student achievement in private schools but negatively (though negligibly) so related in government schools.

In the majority of cases, private schools are more effective than government schools, and more efficient as well given their lower expenditures. Academic achievement is usually significantly higher in private schools, holding student characteristics constant, and these gains are most often robust to controls for peer group effects when these are included. The earnings of private school graduates may be significantly higher as well, though the weight of evidence on this point is more limited.

Privately-managed schools tend to have better-maintained facilities and more orderly classrooms than government schools. This is true whether the private schools are government subsidized or not, but the difference appears to be largest between unsubsidized private schools and government schools.

Private schools also seem more responsive to parental wishes in their course offerings and attention to individual students. In many countries, government schools shun the teaching of foreign languages despite the parental demand for such instruction. Private schools respond to this demand much more readily. Commenting on the greater frequency with which English is taught in private schools, one teacher in rural India asked a PROBE researcher: "Why should they pay us... if we don't give them something special?"¹⁵¹ Parents also complained to PROBE researchers that public school teachers often ignored first-graders and children of lower castes, and the researchers noted that such complaints were much less common among parents of private school students.¹⁵²

Summing up the generally more professional atmosphere found in rural private schools, the PROBE report noted "the key role of *accountability*" in private versus government schooling, stating that:

In a private school, the teachers are accountable to the manager (who can fire them), and, through him or her, to the parents (who can withdraw their children). In a government school, the chain of accountability is much weaker, as teachers have a permanent job with salaries and promotions unrelated to performance. This contrast is perceived with crystal clarity by the vast majority of parents.¹⁵³

The Impact of Competition

Increased competition sometimes leads to improved performance by public schools, but the relationship is both stronger and more consistent in the private sector. Chilean public schools were found to respond positively (though modestly) to heavier competition, but the response by private schools was greater. In some urban areas of Pakistan and India, even the poorest families are more likely to pay for unsubsidized private schooling than to send their children to free public schools, indicating that public schools have been failing to improve in response to competition. Because of their higher population densities, urban areas have consistently higher levels of competition and hence are more likely than rural areas to enjoy the benefits associated with competition.

There are several possible explanations for public schools' lower responsiveness to the presence of competitors. First, their services are usually free or at least substantially less expensive than those of private schools, and hence they may not need to provide superior or even comparable service quality in order to attract clients. This would partially explain the lower student achievement and inferior facilities maintenance at public schools. Public schools are also unlikely to be closed down by the government bodies overseeing them even if they fail to attract a significant student body. This pattern has in fact been observed by some of the researchers studying the Chilean subsidy system. In the most extreme cases (e.g. in Pakistan and India), state funding sometimes flows to district education bureaucrats or putative school managers even when they have neglected to open schools. There is no equivalent of these abuses in the private sector, as parents do not pay tuition to non-existent private schools.

The Quality of Parental Decision Making

Parents do appear to make wise decisions regarding their children's education. Evidence from Pakistan and Tanzania, for instance, suggests that parents can not only distinguish between different levels of academic quality, but chose their schools in part based on those distinctions.

The interesting pattern in class size effects between sectors is also suggestive. Readers will recall that class size was often found to be positively related to academic achievement in private schools (i.e. bigger classes have better scores), but unrelated or negatively related in public schools (i.e. bigger classes have worse scores). One plausible explanation for this suggested by Alderman et al. is that the better private schools attract more students, and hence have larger classes. This would be consistent with the fact that most of the private schools discussed in this paper are located in less-developed countries, and are often serving low-income families within those countries, implying that the costs of expansion (in facilities and staff) might be a comparatively high hurdle for them to overcome. This would tend to drive up class sizes within popular schools.

The fact that academically superior private schools attract large numbers of students despite their higher out-of-pocket costs to families suggests that parents do indeed make superior decisions regarding their own children's education than the bureaucrats operating public schools make on their behalf. That point of view finds further support in the prevalence of government requirements for official teacher certification despite the irrelevance of such certification to academic achievement.

The Impact of Regulation on Private Schools

Private schools that are funded chiefly or entirely by the state, and that are heavily regulated by the state, tend to behave similarly to government schools, and to be less efficient and effective than unaided schools (except where the creation of unaided schools has been constrained by the government). In Uttar Pradesh, for example, private aided schools spend only slightly less than government schools, and are only slightly more efficient than government schools. More autonomous private unaided schools, by contrast, are significantly more efficient than either government or private aided schools. In Tamil Nadu, where

regulation of aided schools is looser, aided schools are significantly more efficient than government schools.

Tamil Nadu's regulatory hurdles to the creation of unaided schools, which were only eased during the mid 1990s, seem to have drastically limited the number of such schools created in that state, and may have contributed to their higher costs (as compared to unaided schools elsewhere in India).

The Supply of Private Schools

Private schools exist wherever there is sufficient demand to sustain their operations, even in regions of extreme poverty. The notions that private schools serve only the wealthy or that they are mostly selective and elitist institutions are emphatically contradicted by the evidence.

The supply of private schools has grown substantially when the out-of-pocket cost advantage of government schools has been reduced (as in Chile), and even when it has not (as in Pakistan and India). In Chile, where subsidies for private schools were introduced nationwide in the early 1980s, the private sector share of total enrollments more than doubled over the ensuing fifteen years, and continues to grow today. These findings contradict claims that private school supply would not expand in response to large-scale voucher or tax credit programs in the United States.

A cautionary note is advisable, however: Newly created schools seem to perform less well than established schools. This is true whether or not the new schools are established in response to the introduction of a government subsidy program. The experiences of Chile and Tanzania suggest that this inferiority diminishes over time, with the longer term Chilean data indicating that the difference eventually disappears entirely.

Assessing the Predictions

In this section we review the five predictions of the FFT, and test their validity against the findings presented above.

1. When parents lack choice and control over their children's education they are likely to have greater difficulty obtaining the kind and quality of educational services they seek. To the extent that an official curriculum is imposed by the state (thus greatly limiting parental choice and control), it is expected to precipitate social conflict (at least in pluralistic societies).

The first prediction of FFT was that reductions in parental choice would make it difficult for parents to secure the kind and quality of educational services they seek. Parental choice is indeed limited in most of the nations discussed above, given that government schooling is usually offered either for free or at a substantially lower fee than private schooling. Under these circumstances, parents are under substantial financial pressure to send their children to government schools regardless of their educational preferences. PROBE researchers noted, for example, that the majority of parents they surveyed would opt for private schools if were not for their higher out-of-pocket cost. Some portion of government school attendance thus seems to result from financial expediency rather than from a free choice between two equally costly educational options.

Under FFT, government schools should therefore tend to provide lower levels of educational effectiveness and efficiency than private schools, and this does indeed appear to be the case. Several of the studies also reported that private schools were more responsive to the curricular demands of parents, particularly in the area of foreign language instruction (usually English). This too is in line with the first FFT prediction. Though state-mandated curricula were imposed in some of the nations or regions studied, no data were collected on the social effects associated with these curricula, and so this portion of the first FFT prediction cannot be addressed here.

2. Lack of competition between schools is expected to increase costs and decrease quality and efficiency, while also lessening the likelihood that schools will try to do their best with each and every child. It is also expected to be associated with inferior facilities maintenance, and with parents having reduced access to concrete information on their children's performance.

Only one study (Gallego) specifically attempted to isolate the effects of competition, and it found that increased competition is associated with improved academic quality. A great deal of indirect evidence can also be brought into play, however, since it has already been noted that government schools are generally much less exposed to competitive pressures than are private schools. We should therefore expect that government schools will on the whole suffer from the effects of reduced competition. This indeed is the case, as government schools typically had higher costs, inferior achievement, and lower efficiency.

The prediction that lack of competition would be associated with poor facilities maintenance also finds corroboration in the experiences of several nations, though relevant data were not collected in many cases.

Findings from the PROBE report offer some support for the prediction that government schools, insulated as they are from the full effects of competition, fail to do their best with every child they enroll. This is too meager a basis, to be sure, to reach a solid conclusion on this point. There is also insufficient evidence on which to base any conclusion regarding the relative availability of information on student performance in more competitive versus less competitive environments.

3. Government restrictions on the creation and autonomy of schools are predicted to abbreviate the range of educational services available to families, preventing schools from offering the services desired by their specific clientele. Caps on school fees and the imposition of government budgeting rules are expected to stifle innovation and expansion by making it difficult for schools to raise and allocate the funds necessary to pay for these activities. Lack of school autonomy, particularly in combination with lack of parental choice, may also result in a less communal and more disruptive school and classroom atmosphere.

Few studies explicitly collected data assessing the relationship between school autonomy and the diversity and responsiveness of schools, though some inferences can be made. Barriers to the creation of private unaided schools in Tamil Nadu may have contributed to the

unusually small share of the market held by unaided schools in that state—thus all but eliminating that educational option for most families. It is also the case that government school systems, with their officially determined curricula, are less responsive to many parents' demand for foreign language instruction.

Neither levels of innovation nor the expansion of successful schools were explicitly documented in the research covered in this paper, so it is not possible to draw a link between these phenomena and budgetary autonomy. Given that Chile's private subsidy program forbade the private schools to charge tuition during its first decade, but then began allowing tuition fees after 1993, it might provide a good test bed for this question in future research.

According to anecdotal testimony related by Gulosino and Tooley, government rules concerning private school budgets appear to pose a range of operational difficulties for schools, including making it difficult for them to finance the upgrading of their facilities. That was not predicted by the FFT.

In India, Thailand, and the United States, classrooms were more orderly in relatively autonomous tuition-charging private schools than in other school sectors, just as predicted by the FFT.

A particularly widespread effect not predicted by the FFT is that government constraints on the creation and operation of private schools has led to the proliferation of unrecognized, unsanctioned private schools in several nations. Government attempts at controlling the characteristics of private schools have thus often led to the opposite of the intended outcome: a profusion of informal and unregulated "underground" schools.

There is also evidence from India that more extreme levels of government regulation of private schools are associated with lower academic achievement and/or efficiency. In Uttar Pradesh, autonomous unaided private schools significantly outperform tightly regulated aided schools. The aided schools of Tamil Nadu seem to perform substantially better under their lighter regulatory burden. This was not specifically expected under the FFT.

4. Reducing or eliminating direct payment of tuition by parents is predicted to erode parental control and choice (leading to the problems associated with low parental choice), and increase corruption and fraud. Since state education funding is generally associated with comprehensive state regulation, it is also likely to decrease the level of meaningful competition among schools by homogenizing the services they offer. The extent of the damage caused is suggested to be proportional to the reduction in parental fees.

Many of these negative outcomes appear to be borne out by the empirical evidence. The Indonesian findings by James et al. show that direct financial responsibility is positively and significantly correlated with school efficiency. This is consistent with the FFT prediction to the extent that lower levels of direct parental funding insulate schools from competitive pressures, lessening their incentive to operate efficiently.

The cases of India and Pakistan reveal a stark contrast between government-funded schools and tuition-charging private schools. Pakistan's government schools are generally viewed as being in widespread disarray, appear to be academically inferior to private fee-charging schools, and are shunned by most of the poor in urban areas, who instead opt for fee-charging schools.

Kingdon finds tuition-charging private schools to be significantly more effective and efficient than government-funded private schools. The private schools found by PROBE researchers to be much better maintained and more actively engaged in teaching than their government counterparts were virtually all unaided schools.¹⁵⁴ Only Bashir's findings on Tamil Nadu cloud this picture, and these, as discussed above, are not representative of unaided schools in India as a whole or perhaps even in Tamil Nadu itself.

Government funding intended for public schools in these countries appears to be misspent, squandered, or embezzled with alarming frequency—a problem not commonly observed in schools where parents pay directly for their children's education.

The predicted positive relationship between government funding and government regulation is also evident in most of the nations covered in this paper. In India, for example, aided schools are pervasively controlled by the government, though there is some variation from state to state. This regulation appears to impede the effectiveness and efficiency of aided schools in proportion to its breadth and depth (with less intrusively regulated schools in Tamil Nadu doing better than aided schools in other states). Thailand's offer of government funding to "elite" private schools was also accompanied by a heavy regulatory burden, and the Chilean Subsidy program initially forbade tuition-charging at subsidized private schools.

5. Lack of the profit motive is expected to stifle innovation and impede the process by which more effective schools would expand and either take over or crowd out their less-effective competitors. It is also argued to dull the incentive for cost-cutting and efficiency, discourage entrepreneurs from entering the profession, and discourage the most ambitious and proficient educators from remaining in the profession in the long term.

Conclusions on this prediction are difficult to reach with any certainty given the lack of explicit comparisons of for-profit with non-profit schools, the prevalence of regulations affecting private school budgets and fees, and the contradictory nature of the few suggestive findings available. In Chile, for instance, non-profit Catholic schools are generally found to outperform secular private schools, and McEwan has stated that "many" secular private schools are operated for profit. Neither McEwan nor any of the other researchers to publish on Chilean education appear to have actual figures on the total percentage of private schools that are operated for profit, however, or on the relative performance of for-profit versus non-profit schools. Neither has any effort been made to compare total per-pupil expenditures between Catholic and secular subsidized schools in Chile. Finally, subsidized schools had no control over their per-pupil income for the first 11 years of the program, being forbidden to charge fees, and this substantially alters the context in which profit-maximizing behavior would be expected to take place.

In the Dominican Republic, Jimenez and Lockheed found that non-profit religious schools are far less efficient than secular private schools, and that secular private schools are "often" operated for profit. Again, no actual breakdown is provided on the proportion of secular schools operated for profit.

Theory, Evidence, and Education Tax-Credits

The Five Factor Theory appears to be substantially corroborated by the pattern of empirical findings discussed above. Several predictions are not fully addressed by the available evidence, but contradictory findings are few and supportive ones are numerous.

Knowing that the Five Factors do seem associated with superior educational conditions and outcomes, we are left with the question of how best to reintroduce them in nations where they are hobbled or absent. In my book, *Market Education: The Unknown History*, I argued that a two-part state tax credit program was the best approach. The first part of the program would allow individuals and businesses to take dollar-for-dollar tax credits against donations to private scholarship-organizations, much like the ones studied by Howell and Peterson. Low income parents would then receive scholarships from these organizations to cover most (or all, in the case of the very poor) of the cost of their children's education. For parents who could afford it, a sliding co-payment, based on ability to pay, could be required. The second part of the program would allow any parent not enrolling their child in a government school to take a non-refundable tax-credit to help them cover the cost of their child's education.¹⁵⁵

My chief reason for advocating these tax credits over a voucher program was that they could preserve a higher level of direct financial responsibility for parents. Some analysts have dismissed this argument, asserting that it does not matter *whose* money is paying for a child's schooling so long as parents control *where* the money is spent.¹⁵⁶ The facts examined in this paper call that dismissal into question. Schools in which parents pay some or all of the costs from their own pockets *do* appear to offer superior conditions and outcomes to schools in which the state pays most or all of the costs, even when parents have a choice of state-subsidized schools. Moreover, schools that are mostly or fully funded by the state tend to be much more heavily regulated than parent-funded schools—and extensive government regulation of schools seems to have a negative effect on educational outcomes. This has proven to be true whether or not funding follows the students.

On the issue of regulatory encroachment, it has been asserted that tax credit programs would attract just as much regulation as vouchers. To date, there is insufficient empirical evidence to determine the merit of that assertion. Even if the assertion is true, however, it does not address the fact that direct parental financial responsibility is also associated with improved educational conditions and outcomes. On the whole, therefore, the findings of this paper seems to lend additional support to the arguments I have previously presented favoring non-refundable tax credits over vouchers.

Rather than rehashing those arguments more extensively here, I would direct readers to my book, *Market Education: The Unknown History* as well as to the Fall 2002 issue of *The Independent Review*, in which I present the case for tax-credits over vouchers. In the same issue, Joseph Bast presents the case for vouchers over tax-credits.¹⁵⁷

The constituency that seems poised to benefit most substantially from the introduction of an education tax credit program is the population of large cities. These densely populated areas offer the greatest prospects for a wide range of educational choices and vigorous competition among schools, making them the ideal starting point for an incremental phase-in of tax-credits. Another paper, published in the *Oklahoma Policy Blueprint* outlines just such an "urban-first" phase in of education tax credits, pointing out that it would also help to ensure revenue neutrality.¹⁵⁸

-
- ¹ See Andrew J. Coulson, *Market Education: The Unknown History* (New Brunswick, NJ: Transaction, 1999).
- ² For example, see Andrew J. Coulson, "Toward Market Education: Are Vouchers or Tax Credits the Better Path," *Cato Policy Analysis* no. 392, February 23, 2001. Available on-line at <http://www.cato.org/pubs/pas/pa392.pdf>.
- ³ Two exceptions to the novelty of the data used in this paper are the studies of the Cleveland and Milwaukee voucher plans, which were considered peripherally in my earlier work, and are again discussed here because of their high profile in the U.S. education policy debate.
- ⁴ Coulson, 1999, p. 294-297.
- ⁵ Coulson, 1999, p. 297-299.
- ⁶ Coulson, 1999, p. 269-272.
- ⁷ Coulson, 1999, p. 274.
- ⁸ For a more elaborate discussion, see Coulson, 1999, chapters 9 and 10.
- ⁹ Coulson, 1999, p. 294-297.
- ¹⁰ Coulson, 1999, p. 301-302.
- ¹¹ Coulson, 1999, p. 299-301 & 343-345.
- ¹² Coulson, 1999, p. 268-269.
- ¹³ Coulson, 1999, p. 297-299.
- ¹⁴ Coulson, 1999, p. 304-306.
- ¹⁵ Geeta Gandhi Kingdon, "Private Schooling in India: Size, Nature, and Equity-Effects," *Economic and Political Weekly*, 31 (51), 1996, pp. 3306-3314. Available on-line at <http://www.econ.ox.ac.uk/Members/geeta.kingdon/PublishedPapers/privateschoolinginindia.pdf>. See p. 8 of on-line version.
- ¹⁶ Kingdon, "Private Schooling in India," p. 24 of on-line version.
- ¹⁷ Students at unrecognized schools can pay a fee to take official exams at recognized schools, and thereby earn officially recognized degrees, though the cost of doing so is substantial for poor parents.
- ¹⁸ James Tooley, "Serving the Needs of the Poor: The Private Education Sector in Developing Countries," in Claudia R. Hepburn (ed.), *Can the Market Save Our Schools* (Vancouver, B.C.: The Fraser Institute, 2001).
- ¹⁹ The five states were Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, and Himachal Pradesh.
- ²⁰ Anuradha De, Jean Drèze, Shiva Kumar, Claire Noronha, Pushpendra, Anita Rampal, Meera Samsom, and Amarjeet Sinha, *Public Report on Basic Education in India (The PROBE report)*. New Delhi: Oxford University Press, 1999.
- ²¹ The PROBE team indicated that unrecognized schools had probably been undercounted. See De et al., p. 103.
- ²² De et al., p. 104.
- ²³ *ibid.*, p. 40-41.
- ²⁴ *ibid.*, p. 43.
- ²⁵ *ibid.*
- ²⁶ *ibid.*, p. 104.
- ²⁷ *ibid.*, p. 103-104.
- ²⁸ *ibid.*, p. 103.
- ²⁹ Kingdon, 1996a, p. 25.
- ³⁰ De et al., p. 104.
- ³¹ Headteacher is the Indian (and British) term for school principal. In very small schools, it is more accurate to think of a headteacher as a teacher with administrative duties than as an administrator with teaching duties.
- ³² De et al., p. 47.
- ³³ *ibid.*, p. 63.
- ³⁴ Lydie Ehouman, Sandra Fried, Theresa Mann, Haroon Ullah, "Tamil Nadu: The Path to Becoming India's Leading State," a study conducted for the government of Tamil Nadu by the Center for International Development, Kennedy School of Government, Harvard University, 2002, p. 45.. Available on-line at <http://www.cid.harvard.edu/india/docs/KSG%20student's%20paper.pdf>.
- ³⁵ *ibid.*, p. 64.
- ³⁶ *ibid.*, p. 102.
- ³⁷ *ibid.*, p. 104.

³⁸ *ibid.*, p. 102.

³⁹ *ibid.*, p. 104.

⁴⁰ Geeta Gandhi Kingdon, "The Quality and Efficiency of Private and Public Education: A Case-Study of Urban India," *Oxford Bulletin of Economics and Statistics*, 58, no. 1 (1996), pp. 55-80. Note that Kingdon did not compare parents' total non-tuition expenses (e.g. clothing/uniforms, transportation, textbooks, students' school supplies), which do tend to differ from one sector to another, and can be substantially higher among students attending private unaided schools. It is difficult to determine how these figures should be compared, however, since some parents may chose to spend more than others on items such as clothing and school supplies, and such variations have little or nothing to do with the efficiency of the schools their children attend. A rough attempt at controlling for these cost variations is nevertheless attempted below, using data from De et al. and Sajitha Bashir, "The Cost Effectiveness of Public and Private Schools: Knowledge Gaps, New Research Methodologies, and an Application in India." In: Christopher Colclough (ed.), *Marketizing Education and Health in Developing Countries. Miracle or Mirage?* (Oxford: IDS Development / Clarendon Press, 1997).

⁴¹ Geeta Gandhi Kingdon, "Efficiency of Private Education," 1996, pp. 55-80. In order to isolate and accurately determine the effects that school type has on student achievement, we need to either eliminate or compensate for any non-random selection of children into different school-types on the basis of unobserved characteristics that may affect achievement. In other words, we need to either ensure that students are randomly assigned to the different school types (impossible in the current scenario) or we need to mathematically compensate for the non-random nature of student selection into particular school types. Failing to do this will result in selection bias, by which unobserved factors may affect both the type of school a given child attends and that child's achievement.

⁴² Geeta Gandhi Kingdon, "Efficiency of Private Education," 1996, p. 26.

⁴³ Sajitha Bashir, "The Cost Effectiveness of Public and Private Schools: Knowledge Gaps, New Research Methodologies, and an Application in India." In: Christopher Colclough (ed.), *Marketizing Education and Health in Developing Countries. Miracle or Mirage?* (Oxford: IDS Development / Clarendon Press, 1997).

⁴⁴ This included not only tuition but also the cost of clothing, transportation, and other items. It is a total out-of-pocket cost estimate derived from parental surveys.

⁴⁵ Bashir states that "Government regulation [of unaided schools] is confined to ensuring that prescribed standards for physical infrastructure [e.g. large school grounds] and initial endowments [a cash bond] are adhered to." See Bashir, "Cost Effectiveness", p. 139. Unrecognized schools do not adhere to these requirements, due to their high cost, as noted in the *Conditions* section. The PROBE team also pointed out that unrecognized schools can be hard for researchers to locate since they do not appear on government lists and do not maintain a conspicuous presence. Bashir also indicates that all the unaided schools in her sample were "matriculation schools," which are necessarily government-recognized. See P. Duraisamy, Estelle James, Julia Lane, and Jee-Peng Tan (Undated). "Is There A Quantity-Quality Trade-Off As Enrollments Increase? Evidence from Tamil Nadu, India," World Bank research report, (late 1990s?), p. 12-13. Available on-line at: www.worldbank.org/html/dec/Publications/Workpapers/WPS1700series/wps1768/wps1768.pdf.

⁴⁶ P. Duraisamy, et al. "Is There A Quantity-Quality Trade-Off," p. 30.

⁴⁷ Geeta Gandhi Kingdon, "Private Schooling in India: Size, Nature, and Equity-effects," *Economic and Political Weekly*, 31, no. 51 (1996), pp. 3306-3314. Available on-line at <http://www.econ.ox.ac.uk/Members/geeta.kingdon/PublishedPapers/privateschoolinginindia.pdf>.

⁴⁸ Duraisamy, et al. "Is There A Quantity-Quality Trade-Off," p. 6.

⁴⁹ In Tanzania, teachers' salaries are positively and strongly correlated with higher achievement in the private sector, but not in the public sector (where the correlation was actually reversed, though negligible in magnitude). See the section on Tanzania, below, for details.

⁵⁰ See, for example, Coulson, 1999, p. 269.

⁵¹ Jason Burke, "Where State Fails, Others Give Poor a Chance: Official Corruption and Indifference Have Wrecked the Education System, So People Are Turning To a Range of Private Schools," *The Guardian*, Monday February 28, 2000. Available on-line at <http://education.guardian.co.uk/Print/0,3858,3968295,00.html>.

⁵² Burke, "Where State Fails."

⁵³ World Bank, "Assistance to Private Schools Serving Poor Children: Pakistan," undated (late-1990s?). Available on-line at:

www.worldbank.org/education/economicsec/finance/demand/demfin/assistance_to_private_schools_pk.htm

-
- ⁵⁴ Masooma Habib, "Education in Pakistan: All Demand and Little Supply," paper presented at the Pakistan Economic and Social Development Conference, Saturday March 07, 1998, MIT Sloan School of Management. Available on-line at www.care.org.pk/About_care/press/Masooma_Habib.htm.
- ⁵⁵ Harold Alderman, Peter F. Orazem, and Elizabeth M. Paterno, "School Quality, School Cost, and the Public/Private School Choices of Low-Income Households in Pakistan," *Journal of Human Resources*, 36, no. 2 (2001), pp. 304-326.
- ⁵⁶ World Bank, "Poverty in Pakistan: Vulnerabilities, Social Gaps and Rural Dynamics," conference presentation, Islamabad, January 8, 2003. Available on-line at [http://lnweb18.worldbank.org/sar/sa.nsf/Attachments/Presentation-Poverty/\\$File/Presentation-Poverty.pdf](http://lnweb18.worldbank.org/sar/sa.nsf/Attachments/Presentation-Poverty/$File/Presentation-Poverty.pdf).
- ⁵⁷ Fifteen percent of children in rural areas of Punjab are enrolled in private schools, while 40 percent of urban children are enrolled in private schools. Note that this does not imply that all the other children were enrolled in public schools, but rather that they were either not in school at all or they were enrolled in public schools. See Burke, "Where State Fails."
- ⁵⁸ Alderman, Orazem, and Paterno, "School Quality, School Cost," p. 5-6.
- ⁵⁹ *ibid.*, p. 19.
- ⁶⁰ Arjun S. Bedi and Ashish Garg, "The Effectiveness of Private Versus Public Schools: The Case of Indonesia," *Journal of Development Economics*, 61 (2000), pp. 463-494.
- ⁶¹ Estelle James, Elizabeth M. King, and Ace Suryadi, "Finance, Management, and Costs of Public and Private Schools in Indonesia," *Economics of Education Review*, 15, no. 4 (1996), pp. 387-398.
- ⁶² *ibid.*
- ⁶³ James, King, Suryadi, p. 393.
- ⁶⁴ *ibid.*, p. 395.
- ⁶⁵ Arjun S. Bedi and Ashish Garg, "The Effectiveness of Private Versus Public Schools: The Case of Indonesia," *Journal of Development Economics*, 61, 2000, p. 469.
- ⁶⁶ *ibid.*, p. 480-481.
- ⁶⁷ *ibid.*, p. 482. Emphasis in the original.
- ⁶⁸ *ibid.*, p. 483.
- ⁶⁹ Emmanuel Jimenez and Marlaine E. Lockheed, "Public and Private Secondary Education in Developing Countries, a Comparative Study," World Bank Discussion Paper no. 309, December, 1995, p. 47.
- ⁷⁰ Charisse Gulosino and James Tooley, "The Private Sector Serving the Educational Needs of the Poor: A case study from the Philippines," working paper, E.G. West Centre, School of Education, University of Newcastle, August 2002, p. 2-4.
- ⁷¹ Jonathan Ablett and Ivar-André Slengesol *Education in Crisis: The Impact and Lessons of the East Asian Financial Shock, 1997-99*. Paris: UNESCO, 2000, p. 23. Available on-line at <http://unesdoc.unesco.org/images/0012/001233/123331e.pdf>.
- ⁷² Jimenez and Lockheed.
- ⁷³ Jimenez and Lockheed, p. 56.
- ⁷⁴ *ibid.*, p. 57.
- ⁷⁵ See Futoshi Yamauchi, Kenn Ariga, Nipon Poapongsakorn, Joy Abrenica, Kiratipong, Tosmai, Sake, and Vanessa, "Why Do Schooling Returns Differ So Much? Observations and Puzzles from Thailand and the Philippines," conference paper, October 2002. Available on-line at <http://www.kier.kyoto-u.ac.jp/~ariga/download/ADBI2002/education3.pdf> and Futoshi Yamauchi and Joy Abrenica, "Is Private School Premium Spurious? The Role of Private Schools in the Philippines," conference paper, October 2002. Available on-line at <http://www.kier.kyoto-u.ac.jp/~ariga/download/ADBI2002/education2.pdf>.
- ⁷⁶ Jimenez and Lockheed, p. 67.
- ⁷⁷ Jimenez and Lockheed.
- ⁷⁸ Paul Glewwe and Harry Anthony Patrinos, "The Role of the Private Sector in Education in Vietnam. Evidence from the Vietnam Living Standards Survey," World Bank LSMS Working Paper no. 132, 1999.
- ⁷⁹ Glewwe and Patrinos, "The Role of the Private Sector," p. 11.
- ⁸⁰ *ibid.*, p. 22.
- ⁸¹ Gérard Lassibille, Jee-Peng Tan, Suleman Sumra (1999). "Expansion of Private Secondary Education: Experience and Prospects in Tanzania," World Bank working paper no. 12, revised draft of July. Available on-line at www.worldbank.org/education/economicsec/finance/demand/related/Africa/Private.doc.

-
- ⁸² Jimenez and Lockheed, p. 37.
- ⁸³ *ibid.*, p. 35, 37.
- ⁸⁴ Lassibille, Tan, and Sumra, "Expansion of Private Secondary Education," p. 6.
- ⁸⁵ *ibid.*, p. 5.
- ⁸⁶ *ibid.*, p. 10-11.
- ⁸⁷ *ibid.*, p. 44.
- ⁸⁸ Jimenez and Lockheed, p. 40.
- ⁸⁹ Another study using data from the early 1980s apparently corroborated the sectoral effects on academic outcomes found by Jimenez and Lockheed, but a copy of that study was not available at the time of this writing, and hence it is not reviewed here. See George Psacharopoulos, "Public Versus Private Schools in Developing Countries: Evidence from Colombia and Tanzania" *International Journal of Educational Development*, vol. 7 (1987), no.1, 59-67.
- ⁹⁰ Jimenez and Lockheed, p. 36.
- ⁹¹ *ibid.*, p. 40.
- ⁹² *ibid.*, p. 41.
- ⁹³ Lassibille, Tan, and Sumra, 1999, p. 11.
- ⁹⁴ *ibid.*, p. 45.
- ⁹⁵ *ibid.*, p. 22-23.
- ⁹⁶ Jimenez and Lockheed, p. 28.
- ⁹⁷ Joshua D. Angrist, Eric Bettinger, Erik Bloom, Elizabeth King, Michael Kremer, "Vouchers for Private Schooling in Colombia: Evidence from a Randomized Natural Experiment," World Bank working paper, 2002, p. 4. Available on-line at: <http://www.nber.org/~confer/2002/si2002/angrist.pdf>.
- ⁹⁸ Jimenez and Lockheed, p. 30 and preceding pages.
- ⁹⁹ *ibid.*, p. 22.
- ¹⁰⁰ Angrist et al., p. 14.
- ¹⁰¹ *ibid.*, p. 1-2.
- ¹⁰² *ibid.*, p. 26-27.
- ¹⁰³ Jimenez and Lockheed, p. 85.
- ¹⁰⁴ *ibid.*, and World Bank, "Dominican Republic Assistance to Private Schools Serving Poor Children," Dominican Republic: Second Education Project, undated. Available on-line at <http://www.worldbank.org/education/economicsec/private/case/dominican.htm>.
- ¹⁰⁵ Jimenez and Lockheed, p. 100 and subsequent pages.
- ¹⁰⁶ *ibid.*, p. 101.
- ¹⁰⁷ Claudio Sapelli and Bernardita Vial, "Evaluating The Chilean Education Voucher System," Instituto de Economia Pontificia Universidad Catolica de Chile, working paper, April, 2002, p. 3. Available on-line at: <http://www.msu.edu/~herrer20/documents/ec823/papers/paper4.pdf>.
- ¹⁰⁸ Chang-Tai Hsieh and Miguel Urquiola, "When Schools Compete, How Do They Compete? An Assessment of Chile's Nationwide School Voucher Program," working paper, January, 2002, p. 6. Available on-line at <http://www.wws.princeton.edu/~chsieh/vouchers.pdf>.
- ¹⁰⁹ Sapelli and Vial, "Evaluating Chilean Voucher System," 2002, p. 4.
- ¹¹⁰ Sapelli and Vial, "Evaluating the Chilean Education Voucher System," Instituto de Economia Pontificia Universidad Catolica de Chile, working paper, second draft, June 2001.
- ¹¹¹ Sandra Cusato and Juan Carlos Palafox, "Qualitative Study of Schools with Outstanding Results in Seven Latin American Countries," research report, UNESCO-Santiago, Regional Bureau of Education for Latin America and the Caribbean, 200, p. 86. Available on-line at www.unesco.cl/pdf/laboratorio/study.pdf.
- ¹¹² *ibid.*, p. 58.
- ¹¹³ Emiliana Vegas, "School Choice, Student Performance, and Teacher and School Characteristics: The Chilean Case," research report, Development Research Group, World Bank, Washington, D.C., 2001, p. 4. Available on-line at: http://www.worldbank.org/wbi/B-SPAN/docs/school_chile_doc.pdf.
- ¹¹⁴ *Ibid.*
- ¹¹⁵ Patrick J McEwan, "Public Subsidies for Private Schooling: A Comparative Analysis of Argentina and Chile," *Journal of Comparative Policy Analysis: Research and Practice*, 4 (2002), pp. 189-216.
- ¹¹⁶ *ibid.*

-
- ¹¹⁷ Emiliana Vegas, "School Choice."
- ¹¹⁸ Dante Contreras, "Vouchers, School Choice, and the Access to Higher Education," Yale University Economic Growth Center, Discussion Paper no. 845, June 2002, p. 3.
- ¹¹⁹ Sapelli and Vial, "Evaluating Chilean Voucher System," 2002."
- ¹²⁰ One of these is the James, King, and Suryadi "Schools in Indonesia," paper cited earlier. See p. 395.
- ¹²¹ Personal communication with Claudio Sapelli, March 18, 2003.
- ¹²² Sapelli and Vial, "Evaluating Chilean Voucher System," 2001, p. 16-17.
- ¹²³ *Ibid.*, p. 17.
- ¹²⁴ Hsieh and Urquiola, "When Schools Compete," p. 33.
- ¹²⁵ *ibid.*, p. 19 & 22.
- ¹²⁶ *Ibid.*, p. 21.
- ¹²⁷ *Ibid.*, p. 23.
- ¹²⁸ *Ibid.*, p. 33.
- ¹²⁹ *Ibid.*, p. 23.
- ¹³⁰ *Ibid.*, p. 25.
- ¹³¹ *Ibid.*, p. 26.
- ¹³² Sapelli and Vial, "Evaluating Chilean Voucher System," 2002, p. 2.
- ¹³³ Francisco A Gallego, "Competencia y Resultados Educativos: Teoría y Evidencia para Chile," Central Bank of Chile, Working Papers No. 150, April 2002.
- ¹³⁴ Sapelli and Vial, "Evaluating Chilean Voucher System," 2002, p. 6.
- ¹³⁵ Chang-Tai Hsieh and Miguel Urquiola, "When Schools Compete," p. 24-25.
- ¹³⁶ Gallego, "Competencia," p. 44.
- ¹³⁷ See, for instance, William G Howell and Paul E. Peterson, *The Education Gap. Vouchers and Urban Public Schools*. Washington, DC: Brookings Institution, 2002, p. 29.
- ¹³⁸ *ibid.*, p. 92.
- ¹³⁹ *ibid.*, p. 151.
- ¹⁴⁰ *ibid.*, p. 161.
- ¹⁴¹ *ibid.*, p. 175.
- ¹⁴² *ibid.*, p. 178.
- ¹⁴³ *ibid.*, p. 184.
- ¹⁴⁴ <http://www.SchoolChoiceInfo.org>.
- ¹⁴⁵ Jay P Green, Paul E. Peterson, and Jiangtao Du, with Leesa Boeger and Curtis L. Frazier, "The Effectiveness of School Choice in Milwaukee: A Secondary Analysis of Data from the Program's Evaluation," Harvard University Occasional Paper, 96-3, 1996.
- ¹⁴⁶ Cecilia Elena Rouse, "Private School vouchers and Student Achievement: An Evaluation of the Milwaukee parental Choice Program," working paper, May 1997.
- ¹⁴⁷ John F Witte, Troy D. Sterr and Christopher A. Thorn, "Fifth-Year Report: Milwaukee Parental Choice Program," Department of Political Science and The Robert M. La Follette Institute of Public Affairs, University of Wisconsin-Madison, December 1995. Available on-line at http://dpls.dacc.wisc.edu/choice/choice_rep95.html.
- ¹⁴⁸ Personal communication with Natalie A. Legan, Research Associate at the Indiana Center for Evaluation, March 10th, 2003.
- ¹⁴⁹ Howell and Peterson, 2002, p. 42.
- ¹⁵⁰ Kim Metcalf, "Cleveland Scholarship Program Evaluation: 1998 – 2000," Technical Report. Bloomington, Indiana: Indiana Center for Evaluation, 2001.
- ¹⁵¹ De et al., p. 104.
- ¹⁵² *ibid.*, p. 51.
- ¹⁵³ *ibid.*, p. 64.
- ¹⁵⁴ Fewer than five percent of the private schools found to be serving the rural poor by PROBE researchers were aided schools. See De et al., 1999, p. 103.
- ¹⁵⁵ A tax credit is nonrefundable if it allows taxpayers to keep more of the money they earn, but cannot result in a positive outlay from the government treasury to the taxpayer. All taxpayers, by contrast, can claim refundable tax credits, and if their tax liability is less than the value of the credit, they receive a payment ("refund") from the

government treasury in the amount of the difference (up to the full value of the refundable credit). Refundable credits are, for all intents and purposes, equivalent to vouchers. For a further discussion of this issue, see: Coulson, 1999, p. 333, 373–374.

¹⁵⁶ For example, see Humphreys, John, "Funding School Choice: Vouchers or Tax Credits. A Response to Buckingham," *Policy*, 18, no. 1 (Autumn 2002), pp. 15-18. Available on-line at <http://www.cis.org.au/Policy/aut2002/polaut02-3.pdf>.

¹⁵⁷ See Andrew J. Coulson, *Market Education: The Unknown History* (w Brunswick, NJ: Transaction, 1999) and "Giving Credit Where It's Due: Why Tax Credits Are Better Than Vouchers," *The Independent Review*, VII (2), 2002, pp. 277-287 also Joseph L. Bast, "Why Conservatives and Libertarians Should Support School Vouchers," *The Independent Review*, VII (2), 2002, pp. 265-276.

¹⁵⁸ Andrew Coulson, "Fulfilling A Promise: A Plan for Bringing Educational Freedom to All Oklahomans." In Brandon Dutcher (ed.), *Oklahoma Policy Blueprint*. Oklahoma City: Oklahoma Council for Public Affairs, 2002. See particularly the final section.