Should for-profit schools be banned?

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Should For-Profit Schools Be Banned? [*]

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Abstract

This paper uses different methods to evaluate the performance of students of public, subsidized, and private schools; distinguishing among for-profit and non-profit schools.

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"**Alvy Singer**: [*addressing the camera*] There's an old joke - um... two elderly women are at a Catskill mountain resort, and one of 'em says, 'Boy, the food at this place is really terrible.' The other one says, 'Yeah, I know; and such small portions.'"
(Annie Hall, 1977)

1   Introduction

A major debate followed the Ideological Congress held by the most important political party (Christian Democrats) of Chilean's ruling coalition (*Concertación*) on September of 2007. By a wide margin, it approved a proposal to eliminate a subsidy through vouchers to for-profit private schools.

Due, at least in part, to this proposed resolution, the ruling coalition and the opposition agreed on a wide range of proposals for reforming the educational system, none of which explicitly forbid for-profit schools, but that imposed further restrictions on them.

At the moment of writing this paper (July, 2008), the proposed reform is under discussion on the parliament, accompanied by protests by groups of students and teachers unions that ask for banning for-profit schools.

Making for-profit private schools ineligible to receive vouchers would be a radical departure from the main ideas behind the pioneering reform that introduced the voucher system in Chile in 1981.

The reform entailed transferring public schools to municipalities, thus decentralizing primary and secondary education. Since then, school administration has been carried out by both public (municipalities) and private providers (referred to as administrators) that receive most of their funds from vouchers and, in some cases, from fees paid by parents. The voucher is transferred to the school according to the number of students who attend classes. The decision of which school to attend is left to the parents.

The system has achieved almost universal coverage, and impressive results in terms of increasing the number of schools and their infrastructure. However, by

international comparisons, results in terms of quality have been rather disappointing.

The educational system comprises three types of schools:

- Public: Administered by municipalities and financed primarily with vouchers.
- Subsidized: Administered by private institutions and financed primarily by vouchers (with small additional payments made by parents).
- Private: Administered by private institutions and financed exclusively by payments made by parents and private transfers.

Private administrators in subsidized and private schools may or may not be for-profit organizations.

In terms of enrollment, the share of students attending private schools has remain virtually unchanged since 1981, but the enrollment in subsidized schools administered privately has increased steadily; thus, decreasing the share of enrollment in public schools (Paredes and Pinto, 2008).

The argument behind effectively banning a profit motive in the education industry (as opposed to, say, the ice cream industry) is not clear. Although the academic debate regarding the superior performance of private schools with respect to public schools is not settled, most of the empirical literature finds support for it.[1] However, to our knowledge, there is no evidence that supports the claim that non-profit schools perform better (or worse) that for-profit schools.

Even in that case, as altruism is not at free disposal, in the absence of a profit motive, the number of non-profit schools will not necessarily increase in the amount necessary to absorb students of for-profit schools. Furthermore, some characteristics of non-profit schools may not accommodate the preferences of some parents. Thus, banning for-profit schools could make the students of for-profit schools worse off as some of them may end up having to attend public schools.

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[1] Some examples are Hoxby (1994, 2000, 2005), Rothstein (2004, 2005), Lavy (2005), Sandstrom and Bergstrom (2005), Hsieh and Urquiola (2006), Chumacero et al (2008), and references therein.

Revealed preferences suggest that parents that choose to send their children to for-profit schools consider them more attractive than public schools or non-profit schools, as both alternatives could have been chosen instead.

This paper uses several econometric specifications to quantify the differences in the performance in standardized tests for students of different types of schools, stressing the differences between for-profit, non-profit and public schools. The paper also provides some additional considerations that should guide the debate regarding this matter. The paper is organized as follows: Section 2 provides a simple theoretical framework to understand the differences between for-profit and non-profit private schools. Section 3 describes the construction of the data-set used in Section 4 to conduct different econometric exercises to test the differences on the performances of students of different types of schools. Finally, Section 5 concludes.

2   A (very) Simple Model

Unlike other products, education is provided by a variety of agents (public and private). Furthermore, private providers of education differ significantly. They differ on dimensions such as the number of schools they operate, the characteristics of the education they provide, the types of students they attract, the "values" or competences they supply, and, of course, if they explicitly pursue a profit motive or not. Such heterogeneity exists because this market values diversity.

Rose-Ackerman (1996) considers three interrelated functions that non-profits may serve: First, due to monitoring costs, donors may prefer to sponsor non-profit firms (Easley and O'Hara, 1983). Second, due to information asymmetries regarding the quality of a service, donors may prefer to sponsor non-profits as for-profits may have more incentives to misrepresent. Finally, donors may derive pleasure from supporting specific causes or advocating certain values. Then, non-profits may exist to cater these causes or values.

There is no consensus regarding the economic efficiency of non-profit firms. In cases, they may push the quality and quantity of the service provided beyond a socially optimal level. On the other hand, they may be more efficient than the

government in the provision of some public goods, as taxes will not generally reflect the benefit from the service (Holtmann, 1983).

This section derives a simple model to evaluate some of the possible differences between for-profit and non-profit schools.

Let us start by considering the problem of a for-profit school. The objective function of the administrator is to maximize:

$$\pi = pf(q,x) - rq - sx, \tag{1}$$

where p is the price charged for each student and $f(\cdot)$ corresponds to the number of students. This number is determined by two factors that the school chooses. The first, q, represents the quality of the service provided and is summarized in, say, performance in standardized tests. The cost of producing one unit of q is r. It is assumed that $f_q > 0$.

The second factor, x, summarizes other characteristics of the school that parents value that can be interpreted as a qualitative feature of the service provided.[2] The price of this factor is s.[3] It is assumed that $f_x > 0$ if $x < x_0$, $f_x = 0$ if $x = x_0$, and $f_x < 0$ if $x > x_0$. This implies, that x_0 is the optimal level of x as far as the parent is concerned.

The administrator maximizes (1) and arrives to the standard first order conditions that equate prices of inputs to their marginal productivities:

$$\begin{aligned} pf_q - r &= 0 \\ pf_x - s &= 0 \end{aligned} \tag{2}$$

Note that the only case in which it is optimal to provide x_0 is if $s=0$. When providing x is costly ($s>0$), the school will provide a level of x that is lower than x_0. On the other hand, if the school receives resources for providing x ($s<0$), it is optimal for it to provide more x than the parent considers optimal.

The sufficient conditions for profit maximization are:

$$f_{qq} < 0, \ f_{xx} < 0, \ f_{qq}f_{xx} - f_{qx}^2 > 0, \tag{3}$$

where the second condition is implied by the first and last.

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[2] For example, it may involve features as religious (or secular) formation, emphasis on recreational activities, etc.

[3] Given the characteristics of x, s may be zero (volunteers) or even negative (fund-raising).

Furthermore, the firm will demand less q and x when their respective prices increase:

$$\frac{\partial q}{\partial r} = \frac{f_{xx}}{\Delta} < 0, \ \frac{\partial x}{\partial s} = \frac{f_{qq}}{\Delta} < 0, \ \Delta = p\left(f_{qq}f_{xx} - f_{qx}^2\right).$$

On the other hand, the signs of

$$\frac{\partial q}{\partial s} = \frac{\partial x}{\partial r} = -\frac{f_{qx}}{\Delta}$$

depend on the sign of f_{qx}. If q and x are complements, both derivatives are negative.

Finally, how q and x respond to increments in p can not be determined without imposing further structure. However, it can be shown that at least one of them will increase and most likely both.

Next consider the problem faced by the non-profit school. Following Steinberg (1986), we assume that it maximizes:

$$G(k) = k\left[pf(q,x) - rq - sx\right] + (1-k)pf(q,x), \tag{4}$$

where $0 < k < 1$ is a fixed parameter. Note that with k=1, (4) collapses to (1) and we are back to the case where the firm maximizes profits. With k=0, the first term drops out, and the firm maximizes gross revenue.[4]

Assuming the same technology $f(\cdot)$ as above, the administrator maximizes (4) and arrives to the following first order conditions:

$$\begin{aligned} pf_q - kr &= 0 \\ pf_x - ks &= 0 \end{aligned} \tag{5}$$

which appear to imply that if r and s are positive, this firm would provide more q and x than the for-profit firm. The sufficient conditions for maximizing (4) are also given by (3).

It can also be shown that

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[4] This is not the only way in which the non-profit firm could be modeled. For example, Rose-Ackerman (1987) considers that managers may seek to maximize a function $u(q,x)$ subject to the constraint of ending up with zero profits: $\pi = pf(q,x) - rq - sx = 0$. In our example, the preferences of the school administrator may differ from the preferences of the parents in the sense that (for example) $u_x > 0$. In that case, the school may have an additional incentive to supply more x than the parents considers optimal. The literature on non-profits also stresses the introduction of fund-raising in its objective function or constraint. This factor is not explicitly incorporated here, but can be made operative with changes in s.

$$\frac{\partial q}{\partial r} = \frac{kf_{xx}}{\Delta} < 0, \quad \frac{\partial x}{\partial s} = \frac{kf_{qq}}{\Delta} < 0$$
$$\frac{\partial q}{\partial s} = \frac{\partial x}{\partial r} = -\frac{kf_{qx}}{\Delta},$$

which imply that the responses are similar to the for-profit firm, but are scaled down by the factor k.

On the other hand, the responses of q and x to changes in p are identical to those of the for-profit firm.

An interesting aside corresponds to how q and x change with increases in k. That is, would q and x increase or decrease as the objective function of the non-profit firm resembles the objective function of the for-profit firm?

It can be shown that:
$$\frac{\partial q}{\partial k} = \frac{rf_{xx} - sf_{qx}}{\Delta}$$
$$\frac{\partial x}{\partial k} = \frac{sf_{qq} - rf_{qx}}{\Delta},$$

whose signs can not be determined without imposing further restrictions. If both s and f_{qx} are positive, the non-profit firm would provide more of both q and x than the for-profit firm.

Of course, these results assume that the for-profit and non-profit firms have access to the same technology and face the same prices. Because of the discussion presented above, by the own nature of non-profits this is not necessarily the case. If non-profits tend to receive more donations based on their stance on x, and the optimal level of x differs between donors and parents, non-profits may end up "sacrificing" q and providing "too much" x.

The coexistence of both for-profit and non-profit schools signals that there is demand for a variety of combinations of these dimensions, and some non-profits may specialize on providing a specific combination depending on their availability of donors, volunteers, etc. The same can be said with respect to for-profit firms that may choose different technological processes.

In the educational sector there is also a third relevant provider: the public sector. It is often contended that it has a different objective function than the private sector, although it is not explicitly stated. Some argue that it could resemble (4) with

k=0, but, if that were the case, the first order conditions would imply that q and x should be higher than the ones in for-profit and non-profit firms.

The mere fact that the government is a provider of education is subject to debate. The usual argument for it is that education of an individual provides a positive externality that is not considered when buying education. In that case, the result is too little education.[5] By taxing those who receive the benefit and subsidizing those who purchase education, the welfare of both groups can be improved.

Of course, this would require setting the correct levels of taxes and subsidies. For that, a precise measure of the externality is required. Empirically, it appears that the private benefits overwhelm the externalities, particularly in the case of people that are supposed to provide the greatest externalities (see Lott, 1987, for this and related arguments).

As this section shows, there may be instances in which non-profit schools may provide more q than for-profit schools. It also shows that they may also provide more (or less) of other factors than the ones that would be optimal for households. The empirically relevant questions are if these differences exist and, if so, their orders of magnitude. On the other hand, revealed preferences and the historical evidence suggest that parents choose to leave public schools as their income increases. The next sections quantify the differences in terms of results on standardized tests.

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[5] Lott (2007) provides a fascinating account of the genesis of public education in the United States. Apparently, in the 1820s, legislators in New York were concerned that students may be receiving the "wrong" type of education because most of the (private) schools were run by Catholic churches. They decided to subsidize Protestant schools through a system similar to vouchers. As it often happens, this policy had unintended consequences. To attract students of Catholic schools, the Protestant schools began to teach more of what Catholic parents and students wanted (math, reading, and writing) and less of what they did not want (Protestant religious training). As legislators saw that their objective was not met, they progressively decided to run the schools themselves. This has led some observers to conclude that the provision of public education has more to do with indoctrination. For example, Lott (1999) shows that totalitarian regimes (that have the greatest returns to indoctrination), are more likely to make large investments in education and at the same time make parental involvement in their children's lives more costly.

3   The Data

As argued in the Introduction, there are several empirical studies that have tried to quantify the determinants of the choice of the type of school, and the differences in terms of performance in standardized test between public, subsidized, and private schools.

Although there is no consensus, the majority of studies conclude that, after controlling for other factors, private schools tend to do better than subsidized schools, and these do better than public schools.

The recent proposal to ban for-profit schools from the voucher system implicitly assumes that students would be better off in their absence. However, to our knowledge, there is no systematic study that proves this claim.

The data set that we use to evaluate the determinants of the performance of students has information of the results of the standardized test (called SIMCE) for 255,431 fourth grade students in the year 2005. With the data base it is possible to gather information regarding some individual characteristics of the students such as result on the test and gender; characteristics of the household of the student such as years of schooling of the parents, income, and reported expenditures on education; characteristics of the school such as its location, type of school (public, subsidized, or private), number of schools managed by one administrator, number of students, criteria used for admitting students, and managerial characteristics. Regretfully, with this information one can not distinguish between for-profit and non-profit schools.

This paper does so by using the following strategy. Each school has an ID number (known as RBD). The RBD number of each of the 11,152 schools can be used to collect information of the Tax ID number of the school (known as RUT).[6] The RUT number can then be used to distinguish the for-profit or non-profit status of each school. With this information, we can distinguish between two types of administrators in public schools (municipalities and corporations set by municipalities). For the case of subsidized and private schools, we distinguish between

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[6] We thank Rodrigo Bosch for providing us this information and for suggesting the way to separate for-profit and non-profit schools.

for-profit and non-profit schools. Non-profits can further be divided in foundations and religious organizations.

Approximately half of the students of the sample went to public schools (32.4% managed by municipal directions and 17% by corporations established for that purpose by the municipalities). The share of students attending for-profit schools was of almost 34%, with the vast majority attending subsidized schools. Finally, the students in non-profit schools corresponded to no more than 17% of the students and were primarily administered by religious organizations (Figure 1).

[Figure 1 around here]

Table 1 shows some descriptive statistics of the results of the standardized tests of the students by type of school attended. The differences in performance between public, subsidized, and private schools are significant. The average score in subsidized (private) schools is 21 (60) higher than in public schools. At least at the aggregate level, there are no statistical differences among public schools (either municipal directions or corporations). If we evaluate the difference between public schools and privately administered schools (either subsidized or private) according to whether they are for-profit or not, students in for-profits schools have (on average) 25 more points than students in public schools. The gap with public schools rises to 29 points in favor of non-profit schools. Thus, only considering these factors, for-profits perform substantially better than public schools and marginally worse than non-profits.

[Table 1 around here]

As almost all private schools are for-profit, it could be argued that the correct comparison should be done between public schools and for-profit and non-profit subsidized schools. On average, there are no differences in the performance of non-profit schools run by foundations or religious organizations. Consistent with the model of section 2, non-profits tend to perform better than for-profit subsidized schools (in average by 13 points). However, for-profit schools still have a 16 point advantage over public schools.

Another interesting result is that the standard deviations of the results in tests are remarkably similar across school types.

Table 1 considers that the only source of the difference among students is the type of school. The next section considers other factors.

4   Results

The choice of school is not random. It may come from a complex process of matching between parents and school administrators. Different schools may promote different sets of values (apart from academic achievements) that may attract some parents and not others, and have different characteristics (such as location) that are relevant when the match takes place.

The results of Table 1 may be falsely attributing better results to a type of school, when the difference may be due to other factors. Carefully considering other relevant factors could help to identify the contribution of each type of school. The results of this exercise are summarized in Table 2.

[Table 2 around here]

Column I of Table 2 presents the estimated difference with respect to the Municipal Corporation for other types of schools without controlling for other factors. Including gender (males perform marginally better) and whether or not the school is rural does not change the effects (Column II). Columns III to V include other variables such as up to quadratic terms of the income and expenditures in education of the household, and the education of the mother.[7] The gap between private and public schools decreases in up to 40 points. Non-profits continue to perform better than for-profit subsidized schools, but the margin also narrows (although in all these cases, it may be argued that these variables proxy selection by the demand). Column VI incorporates variables that include information on whether or not the school uses some criteria for selecting students (based on religion, tests, etc). The effect of these variables marginally reduces the gap with respect to Column V. However, based on conventional information criteria, the model of Column VI is not superior to the one of Column V. Column VII includes information on managerial practices of the

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[7] The results are robust to including the education of the father but, due to missing values, including it eliminates close to 5,000 observations.

administrators. Regretfully, this information is not available for private schools which had to be excluded from the estimation. These variables increase the gap between subsidized and public schools.[8] Column VIII includes what are called peer effects. It is stated that this variable may capture the positive externalities for a student associated with having good peers. This variable has received a lot of attention due in part to the fact that its inclusion significantly diminishes the differences between public and subsidized schools. However, there is a serious problem with this interpretation. For one, the magnitude of the alleged peer effect is substantial. Although not reported in Table 2, its coefficient is of 0.5, which indicates that half of the score of the students would be accounted by this effect. Furthermore, a one point increase in the score of the peers would increase the score of the student in half a point. This magnitude is simple not credible. There is one more issue that makes this figure questionable: As shown in Table 1, the standard deviation of the test is relatively stable among types of schools (around 50 points). However, the volatility of the variable that attempts to capture the peer effect inside a school is (by construction) very low. This is due to the fact that the mean would only vary much when excluding the end points (best and worst scores). Given this fact, the alleged peer effect is undistinguishable from a fixed effect of the school which may be due to some other characteristic of the school (good professors, etc). [9] Thus, one should be extremely careful in attributing a peer effect independent to the type of school to this variable. In that case, the reduction in differences should not be as important. Be it as it may, even if the variable is interpreted as a peer effect, it is still possible that it may vary with the type of school. The last column of Table 2 includes a regression in which the alleged peer effect interacts with the type of school. That column reports the coefficients of such interactions. Note that the interaction with the public school is

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[8] It is instructive to note than even after including variables that proxy selection by the schools, incorporating variables that proxy managerial skills complete dominate the former and increase the gap.

[9] One related matter casts doubts on the interpretation of this effect. The median of the score of the class dominates the mean score when both are included. As the median is less sensitive to the removal (or inclusion) of extreme observations, its variation in a class is even lower than the mean. Thus, the inclusion of any of these variables is more likely to be a fixed and not an externality.

negative. This implies that as the average score of a class increases, the "externality" to the other students of the public school is negative. On the other hand, private schools and subsidized schools display a positive effect.

As the effect varies with the average score of the class, the net effect by type of school can not be directly computed. Figure 2 shows the difference with respect to Municipal Corporations for average scores that range between the average score of public schools (240) and private schools (300). Municipal directions start up slightly better than municipal corporations and subsidized schools but deteriorate sharply (and fast) when the average score increases. They do not dominate private schools in the range considered. Subsidized schools perform uniformly better than municipal corporations in the range considered and (if we take this interaction seriously) would even outperform private schools if evaluated at the average score of private schools. Non-profits perform uniformly better than for-profit subsidized schools in the range, but would presumably not perform better for lower average scores.

Should we take these results seriously? Clearly, if the peer effect exists, it is differentiated among types of schools. It is however difficult to make the case that this effect should be greater in subsidized schools than in private schools at the level of the average score of private schools.

5   Concluding remarks

This paper presents empirical estimations to determine the effects of the type of school on the performance of students. In particular, it differentiates for-profit and non-profit schools.

Our results suggest that existing non-profits may perform better than for-profit schools. However, when considering banning for-profit subsidized schools the relevant comparison ought to be with respect to public schools. Regardless of the way in which this difference is estimated, for-profit schools tend to perform better than municipal schools. The difference in test scores may vary from 3 to up to 15 points with our best estimate being of around 10 points.

There are several reasons why banning for-profits is not a good idea. First, it may be the case that parents that choose for-profits with respect to non-profits do so

because they value other characteristics of the school that caters their preferences. Banning for-profits would force parents to send their children to a school with which they do not share values or principles. Second, revealed preferences show that parents that send their children to for-profits consider them a better alternative than public schools. This is so because, the latter was an affordable choice and the parent chose not to do it. Third, even though we find robust evidence that, at present, non-profits perform better than for-profits; this situation could change if for-profits are banned. They could leave the market, transform themselves into entirely private schools, or continue to attend the voucher sector by becoming non-profits. Neither of these situations is recommendable. By leaving the market, students that chose the school would be forced to migrate against their will. By becoming a private school all the students that went to that school thanks to the voucher would be forced to leave. Finally, it is important to understand that the choice of being a for-profit or a non-profit organization is not random. Administrators have different abilities and are interested in catering different types of students. Forcing a for-profit school to surrender its profit motive could be undesirable because it could force them to enter into other areas and inefficiently inflate costs. Genuine for-profits and non-profits manage their resources differently. It is not a coincidence that a large number of non-profits belong to religious or philanthropic organizations. One must remember that Mother Teresa and Bill Gates are special precisely because they are scarce. As altruism is not at free disposal, banning for-profits does not transform administrators in altruists. Another reason why banning for-profit voucher schools is not a good idea is that the ban may impede good private schools from moving to the subsidized sector if the amount of the voucher is increased.

Finally, banning the profit motive in the subsidized sector could force students to attend public schools. As Alvy Singer reminds us, given the track record of public schools in the past, it is strange to complain about its shrinking size and ask for a bigger portion.

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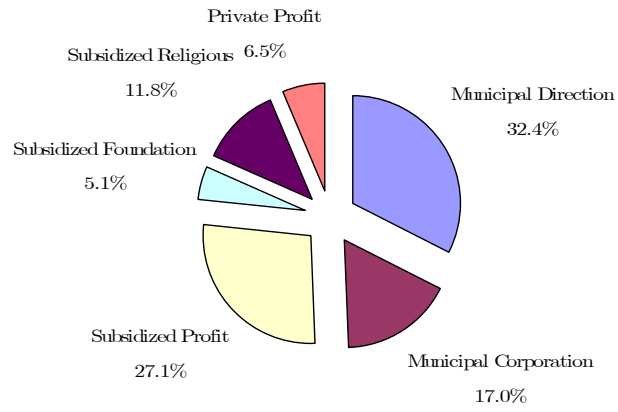
Figure 1

Shares of Students by Type of School

Figure 2

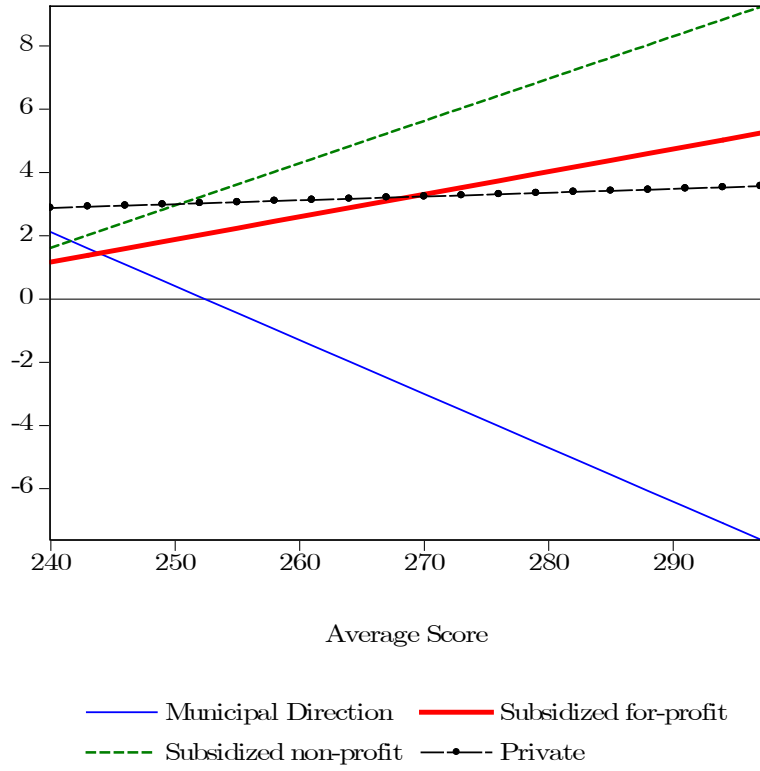**Difference with respect to Municipal Corporation (with Interactive Peer Effects)**

Table 1

Results of Standardized Tests by Type of School

Variable	Public			Subsidized					Private	Total
				For-	Non-Profit			Total		
	Corporation	Direction	Total	Profit	Foundation	Religious	Total			
Mean	239	240	240	256	267	269	269	261	301	253
Median	241	242	242	260	273	275	274	266	306	256
Max	364	364	364	365	364	365	365	365	365	365
Min	106	101	101	100	120	120	120	100	101	100
Std. Dev.	49	48	48	49	48	46	47	48	37	50
Observations	43401	82769	126170	69301	13142	30230	43372	112673	16588	255431

Table 2

Results of Standardized Tests with Different Specifications (with respect to MC)

	I	II	III	IV	V	VI	VII	VIII	IX
MD	1 (0.2)	2 (0.3)	4 (0.3)	4 (0.3)	4 (0.3)	4 (0.3)	5 (0.3)	2 (0.3)	-0.17 (0.019)
SFP	17 (0.3)	16 (0.3)	10 (0.3)	9 (0.3)	8 (0.3)	6 (0.3)	10 (0.4)	3 (0.3)	0.07 (0.019)
SNP	29 (0.3)	29 (0.3)	19 (0.3)	18 (0.3)	16 (0.3)	12 (0.4)	14 (0.5)	6 (0.4)	0.13 (0.020)
PRI	61 (0.4)	60 (0.4)	35 (0.4)	21 (0.6)	20 (0.6)	16 (0.6)		3 (0.6)	0.01 (0.004)
Gender	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Income	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Expenditure	No	No	No	No	Yes	Yes	Yes	No	No
School Choice	No	No	No	No	No	Yes	Yes	No	No
Management	No	No	No	No	No	No	Yes	No	No
Peers	No	No	No	No	No	No	No	Yes	Yes
Interaction	No	No	No	No	No	No	No	No	Yes
Observations	255431	255431	234401	225926	216464	216464	143256	225926	225926
Adjusted R^2	0.11	0.11	0.19	0.20	0.20	0.20	0.15	0.25	0.26

Notes: MC=Municipal Corporation. MD=Municipal Direction. SFP=Subsidized for-profit. SNP=Subsidized non-profit. PRI=Private. Education=Years of Schooling of the mother. Income (Expenditure)=Level and squared income (expenditure in education) of the household. School choice=Dummy variables for different types of selection by the school. Management=Dummy variables for managerial functions performed. Peers=Mean of score of peers. Interaction=Mean of score of peers interacting with type of school. Robust Standard Deviations in parenthesis.