Department of Economics and Statistics "Cognetti de Martiis"
Campus Luigi Einaudi, Lungo Dora Siena 100/A, 10153 Torino (Italy)
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FRANCE'S ALMOST PUBLIC PRIVATE SCHOOLS

GIUSEPPE BERTOLA

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France's Almost Public Private Schools

Giuseppe Bertola *

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Abstract

This paper uses a large and detailed dataset to characterize the enrolment and educational performance of regulated and subsidized French private schools. Individual ability reduces the probability of private secondary schooling. Structural models indeed find that both observable and unobservable initial ability matter less in private than in State schools for successful secondary school completion and access to tertiary education.

Keywords: Education financing; Family background; School selection.

JEL codes: I22, I24.

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1. Introduction

Private schools usually supply better amenities and networking opportunities than government-provided education. Educational outcomes, however, depend on the students' own ability to learn as well as on features of their schools and families. If the public school system provides only basic education, private schools attract better students because their fees fund educational resources that complement student ability (De Fraja, 2002). If State schools are relatively more demanding, conversely, then private schools supply remedial services to worse students (Brunello and Rocco, 2008). Bertola and Checchi (2013) assess the empirical relevance of these theoretical effects in the PISA 2009 dataset, and document that relatively weak students indeed are sorted into private educations in countries where private schools report relatively heavier use of remedial pedagogies.

France is a special case. The PISA survey does not identify any French schools as privately funded and/or independently operated, because in France the State pays the salaries of teachers at private schools that commit to employ only State-certified teachers, to teach the same curriculum as State schools, and to abide by the same academic standards. While nearly all French private schools accept these funds and constraints, they may of course teach the material differently, with different teachers, and to a different student body. The substantial cost of State funding makes it all the more interesting to find out how private schools use their limited autonomy.

This paper uses national data sources to assess how the educational performance of students who choose France's almost-public private schools depends on individual ability as well as on the type of schooling they receive. A large and detailed panel survey provides information about students' individual socio-economic status (SES) and educational achievements, and can be geographically matched to administrative data in order to exploit within-country variation across "local education markets" (LEMs). This information is more detailed than that of other country-specific data sets, such as those analyzed by Bertola, Checchi, and Oppedisano (2007) and their references. While the PISA international survey records only a single test result at an early secondary-school stage, the French data feature a variety of initial and subsequent individual school achievement indicators. Lack of other information however calls for some methodological ingenuity. In the absence of data on family incomes, private school fees, or school-specific pedagogical aspects, the paper characterizes selection into private schools and its effect on educational outcomes using survey questions about each family's financial situation and past private school choices, the socio-economic characteristics of the family and

local schools, and plausible if debatable restrictions on the role of such observable variation in determining school choices rather than school outcomes directly.

Section 2 describes the structure of the French educational system and inspects key variables drawn from a dataset documented in detail by a Data Appendix. Section 3 finds that, conditional on a sensible set of socio-economic controls, there is negative ability selection into private schooling. To the extent that families enroll relatively weak students in schools where ability is a less important determinant of success, French private schools appear to reward ability less strongly than State schools. Section 4 seeks evidence that this is indeed the case using tertiary enrolment as an indicator of success in secondary school, and specifying exclusion restrictions on linear models that control for a large number of geographical and socio-economic status fixed effects or for interpretable controls which absorb fewer degrees of freedom and make it possible to estimate more flexible nonlinear models. In all cases the results detect a quantitatively small, but statistically significant tendency for observable as well as unobservable ability to influence tertiary enrolment less strongly in private than in State schools. Section 5 summarizes the results and discusses possible reasons why French State schools appear not to benefit the students who most need help.

2. Institutional information and available data

A substantial fraction of the student population attends private schools in France. Among the about 17% of primary students and about 20% of secondary students who did so in 2011, however, only 2.8% were in totally autonomous private schools (*école privée hors contrat*) such as Montessori establishments (Vasconcellos and Bongrand 2013). The overwhelming majority of the private schools are of the *sous contrat* type introduced in 1959 by the Debré Act. These are strictly regulated and receive some State funding towards overhead costs (*forfait d'externat*: in 2014 the annual subsidy was 763 euro for each of the first 80 students, and smaller per capita amounts were paid at larger schools) and, since the 1977 Germeur Act, employ teachers whose salaries are entirely paid by the State.

State and *sous contrat* private teachers must have passed a national competition (*concours*) and earn similar salaries at given seniority, but are managed differently. State school teachers are civil servants (*fonctionnaire*), and they are assigned to jobs by a strictly administrative procedure: a vacant place must be assigned to the applicant who ranks highest in terms of a score based on *concours* results, seniority, and some career features (such as serving in administrative or managerial roles). Since 1992 private education is a *mission de service public*

(it is for this reason, as well as to avoid confusion with the private schools that the British call "public", that the paper uses "State" to refer to government-run French schools). But the labor contracts (*de droit public*) of private school teachers, like those of local government employees, do not administratively restrict job assignments: private schools may freely choose any *concours*-qualified applicant for each of the available teaching positions. So while private school teachers must have passed an exam that is similar to that of State school teachers, if they also passed the latter they are not likely to seek employment in the private sector, where career paths and working conditions are less appealing. In the State sector students generally must attend a specific school within their area of residence; this constraint was strictly enforced in the period covered by the available data. They may instead choose to apply and pay for enrolment at private schools, which can set their own admission criteria and are free to charge fees to cover the cost of facilities, amenities, and non-teaching personnel.

The main data set, documented in Data Appendix, is a panel that follows the school career of a large sample of French students. Almost 19% of the sampled students enroll in private schools at the beginning of the panel, and the empirical models below focus on the motivation and implications this choice. The data record indicators of cognitive ability at the beginning of the secondary school curriculum. Below, "Ability" refers to one-tenth of the average of the student's level in mathematics and in reading French assessed, on a 0-10 scale, by the school principal at the time of entry in secondary school. [1] As an indicator of subsequent achievement the paper uses access to tertiary education, which has crucial socio-economic implications and is a common indicator of individual school success.[2]

Because it would be very cumbersome to include age and its interactions in empirical models, the estimation sample includes only students who have not repeated any school year by the time they begin to be observed. Students who entered lower secondary school at the normal

[1] A few no-stakes elementary standardized test results are also available: their empirical role as a determinant of private school enrolment and academic success is similar to that of the principal's assessment but much less precisely estimated, as the tests gather only very basic and rough information. Interestingly, assessed ability at given test results is on average lower in private schools than in State schools. Since a private school principal's subjective assessment might if anything be biased upwards by kindness or respect towards paying customers, this is a sign that students with low unobservable (by the econometrician, but not by the principal) ability are selected into private schooling.

[2] See e.g. Evans and Schwab (1995). Tertiary enrolment is also driven by the family's educational aspirations and constrained by financial resources. But it may largely capture school achievement in France, where secondary school is selective, university fees are low, and tertiary education scholarships are available .

age are assigned a unit value for the "Tertiary enrolment" dummy if they obtain a *baccalauréat* without much delay and soon thereafter enroll in the higher education tracks leading to tertiary degrees. In France this measure of secondary school success is a rather challenging bar, passed by only about half of the students.

Dropping observations with missing variables leaves 11516 students in the sample. Figure 1 plots all observations in the estimation sample of these initial ability and eventual success indicators. The unsurprisingly and strongly increasing relationship between the two, illustrated in the figure by a nonparametric smoother, is quite similar in State and private schools. Ability has almost identical means in State schools (0.684) and private schools (0.685); its standard deviation is somewhat higher within State (at 1.74) than within private schools (at 1.58). The proportion of students who reach tertiary education is somewhat higher among those who enroll in private schools (0.49) than in government schools (0.46).

3. Selection into private schooling

Tables 1a and 1b report linear probability and probit models of selection into private education. Column (1) confirms that there is no unconditional relationship between individual ability and private school enrolment. Conditional on fixed effects that account for geographic variation at the level of all separate locations defined by *département* and city size indicators, column (2) detects a negative but completely insignificant coefficient for ability as a determinant of private school enrolment. Column (3) also includes dummies for all socio-economic status categories, and estimates a very significant negative effect of initial ability on private school enrolment. The pattern of results indicates that, even though average ability is unconditionally very similar in private and State schools, the former are populated by the relatively less able students of higher-status families, which have children of higher ability and can afford to pay school fees.

Heterogeneity within LEMs and socio-economic categories may also be relevant. In the absence of income, wealth, and tuition fees information the relevance of financial aspects for the family's educational choices can be assessed on the basis of a survey question: the dummy variable "Financial problems" takes value one for the 15.5% of the sample students' families that report very inadequate financial resources for the child's educational aspirations. There is no information about non-educational determinants of private school enrolment (such as geographical proximity, taste for specific facilities, or ideology), but such factors may at least partly be captured, after accounting for other observable variation, by previous enrolment in private schools: dummy variable "Private pre-secondary" is unity for students who had at least

some pre-secondary private schooling: this is the case for 30.2% of the sample individuals, and 73.6% of them enroll in a private secondary school. In column (4) of Tables 1a and 1b, financial constraints and private pre-secondary school enrolment have the expected negative and positive signs and are strongly significant as predictors of private school enrolment. Column (5) also includes geographical and socio-economic category dummies. Private pre-secondary remains very significant but the financial problems indicator does not, as detailed controls for socio-economic status capture much of the relevant financial heterogeneity across families.

4. Ability and success in private and State schools

A plausible reason why the parents of relatively low-performing children choose private schooling is that ability influences eventual success less strongly within private than within State schools. To detect this effect, it is necessary to formulate and estimate statistical models that relate initial ability and other relevant characteristics to both initial school choice and eventual tertiary enrolment.

Figure 2 shows not only that initial ability is very heterogeneous within each observable socio-economic category but also that category averages of ability and tertiary enrolment are positively related, with some interesting outliers: the (only four) children of religion professionals are unusually likely to enroll in higher education, children of arts and media workers are on average smarter at age 10 than one would think on the basis of their later school achievement, and the opposite is true for children of farmers and foremen.

Family background and individual ability are plausible determinants of both private school enrolment and educational attainment through two conceptually distinct channels. On the one hand, private schools are more expensive, hence more accessible to privileged families on average. On the other hand, State and private schools may be differently suitable for students of different abilities, in that children of privileged families can be helped at home when they encounter difficulties at school. The models estimated in this section aim to disentangle the two effects by exclusion restrictions: the information conveyed not only by not only by socio-economic status and location indicators, but also by variables that capture additional relevant variation (such as pre-secondary private schooling, financial problems, and parental education), may plausibly identify variation that is relevant to school choice but not directly to school success.

4.1 Linear models with fixed effects

Seeking empirical evidence of a different role of ability in determining success within State and private school, consider linear probability regressions that allow the coefficient of ability as a determinant of tertiary enrolment to differ across State and private schools, include the interaction between private secondary enrolment and ability as explanatory variables for tertiary enrolment.

The OLS regression in column (1) of Table 2 includes as controls the variables and fixed effects encountered above as well as gender, a predetermined variable that turns out to significantly affect tertiary enrolment. The estimates are biased if endogenous enrolment in a private secondary school is influenced by unobservable factors that are correlated with unobservable determinants of tertiary enrolment. The interaction coefficient of interest is negative, suggesting that ability is less relevant in private schools, but insignificant.

To obtain unbiased estimates it is necessary to identify sources of variation that determine private enrolment but do not directly influence further progress in school. The family's financial problems can play this role if (given parents' education and occupational status, and at given individual ability) they are not directly relevant to school achievement. Pre-secondary private schooling can similarly be excluded from secondary school performance determination if the family's propensity to choose private schools mostly reflects persistent non-educational factors, such as ideological and geographical characteristics, or the convenience of full-time attendance and lower likelihood of strikes. Omitting these two instrumental variable candidates from the OLS equation leaves the other coefficients unchanged in column (2) of Table 2.

Columns (3) and (4) of Table 2 report the first and second stage of 2SLS regressions that instrument the main and ability-interacted effects of private school enrolment with the predicted private enrolment probability and its interaction with ability (Wooldridge 2010, Chapter 20). In the first stage regression (3) ability and private pre-secondary are significant, and in the second stage (4) the instrumented interaction of private schooling and ability has a significantly negative coefficient.

The identifying assumption is that levels and interactions of pre-secondary private schooling and financial constraints can be excluded from the second stage. It cannot be tested, because the model is just-identified, but it is possible and useful to discuss briefly what might make it invalid. Excluding a direct role of financial problems in determining school success may be inappropriate if, given other observables, better financial conditions at the start of secondary school influence tertiary enrolment directly, either by making it more affordable or because it

captures cultural factors not controlled by socio-economic indicators and parental education, rather than purely random variation of financial conditions in secondary school. The exclusion restriction that legitimates private pre-secondary schooling as an instrument may be false if having attended a private elementary school, at given resulting ability, makes it easier for children to do well in secondary school, or captures factors that, at each level of school achievement and given other observable characteristics, influence the propensity to enroll in tertiary education.[3]

4.2 Linear models with interpretable covariates

Fixed effects remove the influence on choice and performance of all measurable geographical and socio-economic variation, but make it difficult to interpret its substantive role. It is interesting to replace the complete set of socio-economic dummy variables with a more limited and more meaningful indicator of each student's family background: dummy "Privileged" equals unity for families in socio-economic categories that in Figure 2 on average issue relatively able and successful children.[4] It is also interesting to replace LEM fixed effect with quantitative indicators of local conditions, computed from administrative records (see the Data Appendix for details): variable "LEM privileged families" approximates the share of students who belong to privileged families in each LEM's population, and "LEM private schooling" approximates the share enrolled in private secondary schools.

Because some dimensions of socio-economic and geographical variation are plausibly more relevant to school choice or to school performance, these interpretable indicators make it possible in this subsection to experiment with richer structural specifications. As an explanatory variable for tertiary enrolment, the LEM share of privileged families approximates the availability and appeal of higher-education opportunities, both likely to be stronger in richer

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[3] The coefficient estimates of both variables are significantly negative in the OLS regression of column (1). Should these estimates not be biased by endogeneity of private school enrolment, financial problems may plausibly reduce a students' propensity to enroll in tertiary education. It is not easy to see why the same would be true for pre-secondary private enrolment.

[4] "23 Entrepreneur with >9 employees"; "31 Self-employed professional"; "32 Public sector executive"; "33 Teacher, secondary and tertiary"; "34 Scientist"; "37 Private sector executive, administrative"; "38 Private sector executive, technical"; "42 Teacher, preschool and primary"; "43 Paramedic or social worker"; "44 Clergy"; "45 Public sector supervisor, administrative"; "46 Private sector supervisor, administrative"; "47 Technician." In the sample of normal-age individuals with survey information 3301 (37%) students belong to these categories.

areas. After controlling for socio-economic characteristics, the LEM-level incidence of private schooling captures local supply and demand effects that need not be directly related to individual school outcomes, and can be an instrument along with the private primary school and financial constraints that capture characteristics specific to the family within the LEM. While each individual's socio-economic status influences both school choice and school performance, it is possible to isolate the incentives for high-status families to segregate their children out of State schools interacting the indicator of individual privilege with an indicator of poor local socio-economic conditions: variable "LEM problems" approximates the student population share enrolled in State schools attended by underprivileged student, increasing the appeal of private education for privileged families.[5]

The regressions control for this variation at the level of all the LEM cells defined by the *département* and town sizes of panel students. To give a sense of the extent to which social conditions and private school enrolment vary across French localities, Figures 3 and 4 illustrate their dispersion across departments and city sizes separately. Families with high-socio economic status tend to concentrate in the larger cities and in the most urbanized *départements*, with some exceptions (for example, the proportion of high-status students is very low in a peripheral *départements* of the Paris region). The area's socio-economic level increases monotonically with city size. The incidence of private schooling also varies widely along both the city size and *départements* geographical dimension, and some of the latter variation is plausibly exogenous to individual choices (for example, private schooling is prevalent in areas with a solid Catholic tradition, for example).

Table 3 reports regressions that use interpretable covariates instead of Table 2's fixed effects.[6] The negative interaction of ability and private enrolment is already significant in the OLS restricted regression in column (2), suggesting that in Table 2 fixed effects absorbed much relevant information. In Table 3, summarizing socio-economic conditions with just the

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[5] These are the ZEP and REP schools briefly introduced in the Data Appendix. Only about 2% of students are in an *établissement sensible*. The indicator double-counts them, with negligible implications, when the school is also in a ZEP or REP.

[6] These estimates offer an interpretable perspective on economic and cultural determinants of school choice and performance, but the testable restriction that the fixed effects estimated by the previous specification are well approximated by observed regional variation is rejected at very low p-values in both the first and second stages. Unsurprisingly, BCS-based variables do not capture all geographical variation in various factors that influence outcomes directly (such as the presence and quality of universities and other tertiary institutions) and in private education demand and supply.

binomial privilege indicator lets the coefficient of financial problems be significantly negative in the selection regression (3), where the interaction of privilege with LEM problems is a significantly positive predictor of private school enrolment: private schools tends to be chosen not only by families without stringent financial constraints (as indicated by the negative coefficient of financial problems) or relatively slow-learning children (as indicated by the negative coefficient of ability in the first-stage regression), but also by high socio-economic status families that otherwise would have to send their children to local State schools populated by underprivileged students. Such quasi-experimental variation implies that a broader mix of abilities is pushed into private schools, and in the second stage regression (4) makes it possible to estimate the ability slopes more precisely. The LEM proportion of privileged families is insignificant in column (3), where secondary private school enrolment is significantly explained by the regional prevalence of private schooling, but it is a significant and sensibly positive predictor of tertiary school enrolment in column (4), where it captures variation within France of that choice's local appeal.

The results so far indicate that private secondary schooling has different effects on educational achievement along the distribution of ability assessed when entering secondary school. The estimated main and interaction effects of private schooling and ability are very similar in all specifications, and estimate a small school-specific slope difference: each point of ability assessed on the 1-10 scale increases the probability of success by about 10 percentage points in a State school and about 8 percentage points in a private school. The intercept is also different: private schooling is estimated to increase the probability of success by a little less than 15 percentage points at all levels of ability, and appears to be beneficial only for students assessed below the mean of about 7/10 at the beginning of secondary school. What follows checks and refines these findings using more flexible functional forms and allowing for selection on unobservables.

4.3 Probit models

Table 4 reports the parameters estimates and statistics of joint secondary school choice and tertiary enrolment probit equations that include the same explanatory variables as the linear regressions of Table 3.[7] In the tertiary enrolment probit regressions (2) and (3) the data

[7] The models are estimated in Stata by the `switch_probit` program (Lokshin and Sajaia, 2011). Nonlinear estimation is numerically unfeasible with fully unconstrained fixed effects at the LEM level. Estimating nonlinear specifications with a more limited number of fixed effects yields broadly similar results.

appreciate the additional flexibility afforded by allowing all coefficients, and not just the ability slope, to differ in determining tertiary enrolment: for example, the father's education and the LEM proportion of privileged families are insignificant in column (2) within private secondary schools, but significantly positive in column (3) for students in State secondary schools. Selection bias is eliminated in (2) and (3) on the basis of the school choice probit (1) which, to avoid undue reliance on functional forms, also includes the variables that served as instruments in the linear regressions of Table 3. Previous private schooling, the local prevalence of private schooling and disadvantaged schools, and the interaction of the latter with the family's high status dummy all increase the probability of private school enrolment, while the family's financial difficulties decrease it.

Ability enters with a significantly negative coefficient in the school choice probit (1). Moreover, the estimated correlation coefficients "rho" between unobservable determinants of private school choice and unobservable determinants of success in private and State schools is negative in column (2), indicating that students who choose private schools perform worse than would be expected on the basis of their observable ability and background, and positive in column (3), indicating that those who choose State schools are more likely to succeed. The correlations are small, but jointly different from zero at p-value=0.0101: negative selection on unobservables into private schools indicates that they are attended by not only observably weak, as suggested by the significant negative coefficient of ability in column (1), but also unobservably weak students.

Table 5 assesses the robustness of these results to inclusion of socio-economic status, summarized by the simple binomial privilege indicator, as a determinant of school performance as well as of school choice. It has a significantly positive coefficient in the State sector success probit and leaves other coefficient and correlation estimates largely unchanged, with statistically stronger evidence of negative selection: the null hypothesis that both correlation coefficients are zero is rejected at p-value 0.0056.

As in linear models, so in probit models the negative coefficient for observed ability as a determinant of private school enrolment can be rationalized by ability's smaller relevance to success in private schools. The coefficients of ability as a determinant of success are indeed smaller in private schools, but in nonlinear specifications this is not informative, because the predicted probabilities of success depend on covariates. In the following figures, thicker lines plot the predicted success probability for individuals with assessed initial ability measured on the horizontal line, and other observable covariates as indicated in each figure, when attending

a private (solid line) or a State (dashed line) school. The distance between these lines is the "treatment effect" of private schooling, and is significant at 5% confidence when the thinner lines do not overlap.[8] The estimated relationships are very similar across the private and State sectors. Consistently with the tight administrative constraints of the French school system, uniform educational criteria result in expected secondary school success probabilities that are rather low and tightly related to initial ability. Some of the small differences between State and private schools, however, are statistically significant and substantively interesting.

The left-hand panel of Figure 5 shows the success probabilities implied by the results reported in Table 4 for a male student when parental education and geographical location indicators are set at the full sample mean level. Success is more likely at private schools, significantly so at intermediate levels of assessed initial ability. In the right-hand panel of Figure 5, parental education and geographical indicators are set at their ability-conditional average level: initial ability is exogenous with respect to subsequent school choices, but likely higher for relatively privileged children, and for the ablest students the probability of success (evaluated at their relatively favorable average background indicators) is essentially identical at both private and State schools. The treatment effect of private schools remains positive for less fortunate children, suggesting that they may obtain from private school some of the help their families' cultural environment cannot provide.

To highlight this effect, Figure 6 compares the success probabilities at State and private schools for two male individuals: one with highly educated parents, and one without any tertiary-educated parent. For the former, who is likely to find learning easier and to be helped at home, the effects of enrolment in a State or private school are insignificantly different. Private education instead significantly improves outcomes for a student with less educated parents, who is more likely to need help and (depending on financial and local condition) may or may not be able to get it from a private school. This finding is corroborated by the predicted probabilities plotted in Figure 7, which use the estimates in Table 5 to condition on socio-economic status as well as on parental education. The school performance of children with the best family backgrounds is predicted to be significantly worse in private school. For students

[8] The predicted success probability is the standard normal distribution function evaluated at the point estimates, $\Phi(X\beta)$. The confidence bounds are $\Phi(X\beta \pm 1.96\sigma_{X\beta})$ for $\sigma_{X\beta}$ the estimated standard error of the estimates' prediction.

with less educated and poorer parents, conversely, private schools are significantly better at all except the very best ability levels.

5. Summary and discussion

Almost all French private schools are heavily subsidized and strictly regulated by the State. The results of this paper confirm that they are extremely similar to State schools but find that they tend, on average and at least at the time the data were collected, to provide educational resources that substitute rather than complement students' ability to learn. To the extent that the data and empirical procedures make it possible to distinguish material and cultural aspects of family background, it appears to be the case that in France financial resources (as measured by financial constraints and their relevance to private school enrolment) can purchase what family background (as measured by parental education) makes available to students who attend State schools.

Like all empirical results, those of this paper need to rely on debatable specification choices and are constrained by data availability. A severe limitation of the French data is lack of income, wealth, and school fees information. The paper's specifications use sketchy information on financial conditions and previous private schooling as exogenous determinants of school choice, but not of individual school performance, in regressions that control for other aspects of family background. These and other sources of quasi-experimental variation, such as the empirically strong role of bad local socio-economic conditions in driving high-status families towards private schooling, make it possible to detect statistically significant differences in the relevance across State and private schools of observable and unobservable ability as determinants of tertiary enrolment.

In a country that provides abundant public funding to regulated private schools, it is of some interest to find that private schools are not as easily accessible as, but better than, State schools for weak students from disadvantaged family backgrounds. In order to smooth the implications of uneven family backgrounds, French State schools might need to supply some of the educational services supplied by private schools. The data analyzed in this paper do not provide information on the pedagogical resources and technique of French schools. Further work may exploit other relevant sources of information. Class sizes in France are very similar across State and private schools, and actually somewhat larger in the latter (in *OECD Education at a Glance 2014* Chart C7.3 reports average class sizes of 22.66 in State schools, and 23.27 in private schools). It may be more interesting to explore the role of teacher selection and management

procedures which, as reviewed in Section 2 above, tend to draw academically better teachers into State schools and to make their pedagogical performance less relevant than in private schools to their career and working conditions. Hence, State secondary school education in France may not be so suitable for students who find it difficult to learn, individually or because of their family background, and cannot afford private schooling.

Data appendix

The *Panel d'élèves du second degré, recrutement 1995*, 1995-2011 (DEPP - Ministère de l'Éducation [producer], ADISP-CMH [distributor], available upon request for research purposes at https://quetelet.casd.eu/en/utilisateur/connexion) selects by birthday and follows over time a random 1/40th sample of the French students who entered secondary school in 1996. Institutional reforms, in particular of the *sectorisation* State school choice constraints, would make it inappropriate to merge the similar panels that started in 1980 and 1989 and the more recent *Panel d'élèves du second degré entrés en 6e en 2007*.

In 1995-96, the 17830 panel individuals were enrolled in 5686 distinct lower-secondary schools. Variable `secteur1995` can be recoded to a dummy "Private secondary" that equals unity if the student is observed in a private school during the first *collège* year. The overwhelming majority of private schools are of type "*Contrat d'association toutes classes*": only a few dozen panel students attend "*Hors contrat*" private schools. No disaggregate information is available on the amount of school fees and availability of the facilities and pedagogical aids that are typically offered by private schools. Each school is identified anonymously, but its location is known up to cells defined by size of town and *département* local government units (there are 96 *département* in Continental France and Corsica). The student's residence need not be in the same locality as the school, and is not recorded in the dataset.

The progress of each student is followed during secondary school and beyond. For each year from 1995 to 2006, the data report the upper secondary track of each student at the school attended (each school offers multiple academic and/or vocational tracks). About 94% of the initial sample is retained up to 2002, the earliest year when students could complete their secondary studies obtaining a *baccalauréat*, which makes it possible to access tertiary education programs. Answers to post-*baccalauréat* surveys, administered to panel students who did obtain an exit degree, provide information about enrollment in tertiary education or labor market status. Dummy "Tertiary enrolment" is coded to equal unity if variables `SESSION_BAC2002…2006` record a *baccalauréat* by June 2004 (allowing for one or two repeats in high school, and/or for the additional year required in professional tracks) and variable `formagr1` takes values between 1 and 4, recording enrolment in a tertiary education program. Four panel students obtain a general *bac* in 2001 and also a scientific or literature *bac* in 2002, which is treated as the exit degree in coding the data. Among the 9,197 surveyed secondary school completers, 8,154 report to be studying, but Tertiary enrolment is coded to unity only for the 7,130 who are enrolled in degree-granting programs at universities, or in *Classes Préparatoires aux Grandes Ecoles* (CPGE), or in selective vocational programs (BTS).

The dataset reports a classification in of the family head's occupation in variable `pcschef`, compiled by the data provider using information from both school records and a family survey administered to families in 1998, when panel students were finishing the third or starting the fourth and final year of lower-secondary school. Information is drawn from the survey about tertiary parental education ("Father education" =1 when `A16P`=8 or 9, "Mother education"=`1` when `A16M`=8 or 9); previous school choices ("Private pre-secondary", zero if replies to B3 and B7 are both 1="entirely in State school" or missing); and the family's financial conditions

("Financial problems", unity if A26=1 indicates that family's resources "are very far from sufficient to allow the child to pursue his or her studies for as long as (s)he wishes"). Mailed questionnaires were returned by 12,981 families, and 2309 more answered similar questions by phone. Sampling weights are provided for responders to either family survey phases (pond1) and for responders to the postal survey phase (pond2). The empirical results of the paper use pond1 as Stata pweights. Students who have repeated primary school years are older than the normal age of *collège* entry, as is the case for more than a quarter of the panel individuals: variable datenai reports the year of birth, which is 1984 for only 13224 students.

The *Base Centrale de Scolarité* (BCS) (DEP - Ministère de l'Éducation [producer], ADISP-CMH [distributor], available from https://quetelet.casd.eu/en/utilisateur/connexion) is the administrative database of the French education system. It was established in 1993 but private schools were only later required to provide their data in electronic form (if *sous contrat*). The earliest available data cover the 2004-2006 period. School records for the 11,123 secondary schools are similar to those linked to individual students in the panel. They indicate whether the school is attended by lower secondary (*collège*) or upper secondary (*lycée*) students (and, in the latter case, the academic or professional curricula offered by the school are recorded); the records also indicate whether the school is a private or State establishment and, in the latter case, whether it belongs to a ZEP ("*zone d'éducation prioritaire*") or a REP ("*réseau d'éducation prioritaire*") or is classified as "*établissement sensible*". For 101 schools there are records only in one or two of the three available years of data. No schools switch in 2004-2006 into/out of the REP classification, but some move into ZEP status (6 in 2005 and 1 in 2006) or *établissement sensible* status (1 in 2005, 1 in 2006).

For each of the about 5.5 million students attending these schools in each year, the BCS records not only age and gender but also the school attended and an indicator of socio-economic status that is similar to that recorded in the panel, but records retired parents separately. The paper's empirical models include LEM-specific student population fractions of private or problematic school attendance and of privileged family background, treating "72 Retired artisan/shopkeeper/entrepreneur" as non-privileged and "73 Retired executive/supervisor" as privileged (each of these categories include less than 2% of students' parents.)

The anonymous identifier of the schools attended by the panel students cannot be linked to BCS data, but the geographical location of the school is coded in both data sets by *département* and 8 community size categories (from "rural", to "urban area between 200,000 and 2,000,000 inhabitants", and to the Paris urban area). A total of 505 locations are populated in the data. Controlling for LEM fixed effects implies that observations in LEMs with no local dependent variable variation are dropped. It is possible to link the remaining 456 LEMs indicators to most panel individuals, but 219 were sampled in 1995 from 14 LEMs that are not populated in the 2004-06 BCS database (either because those schools ceased to exist or because the local community moved across the boundaries of the size classification). These observations cannot be linked to LEM variables and are also dropped, with negligible implications, in models that do not use that information.

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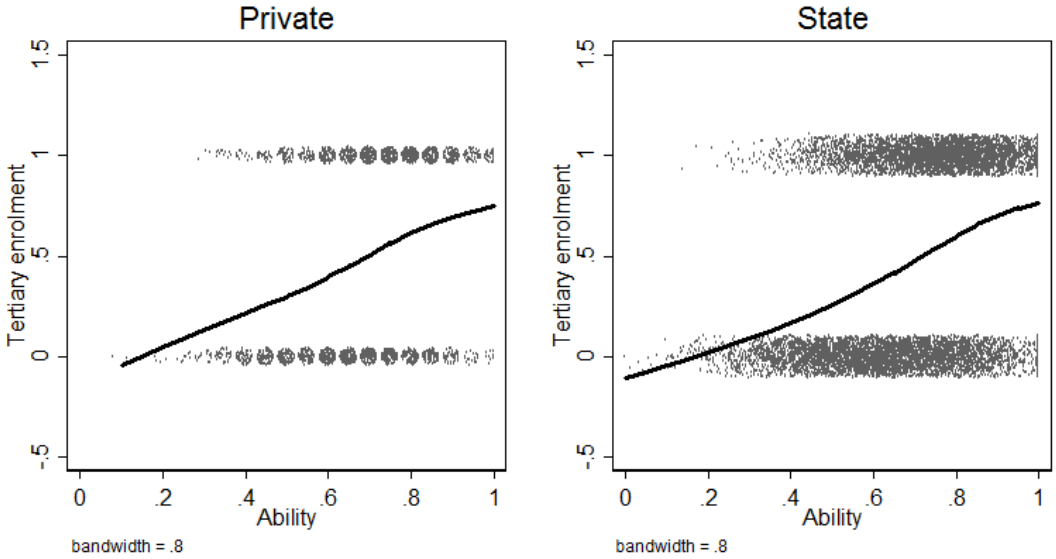

Figure 1. Descriptive relationships between indicators of individual achievement at the start of secondary school (measured in half-point increments between 0 and 10 in the original data, rescaled to 0-1) and secondary school success (measured as 1 if the student enrolls in tertiary education, 0 otherwise) in private and State schools.

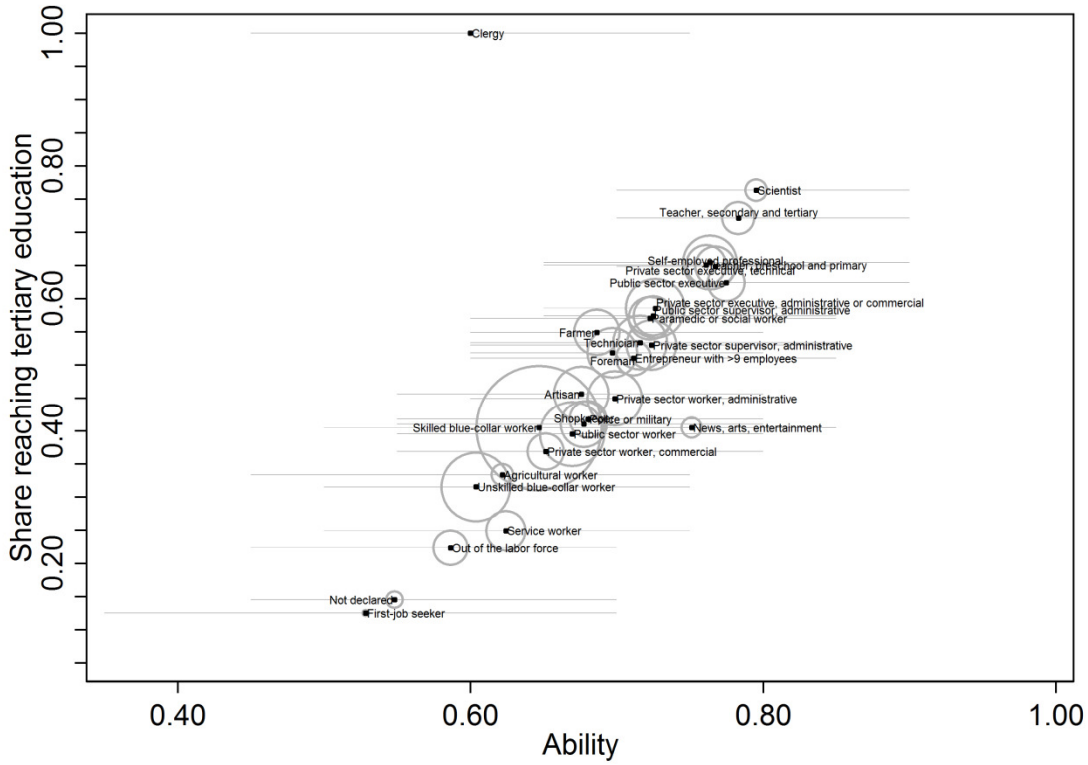

Figure 2. Descriptive relationship between indicators of success in secondary school and initial individual achievement across the socio-economic categories available in the French panel and administrative data.

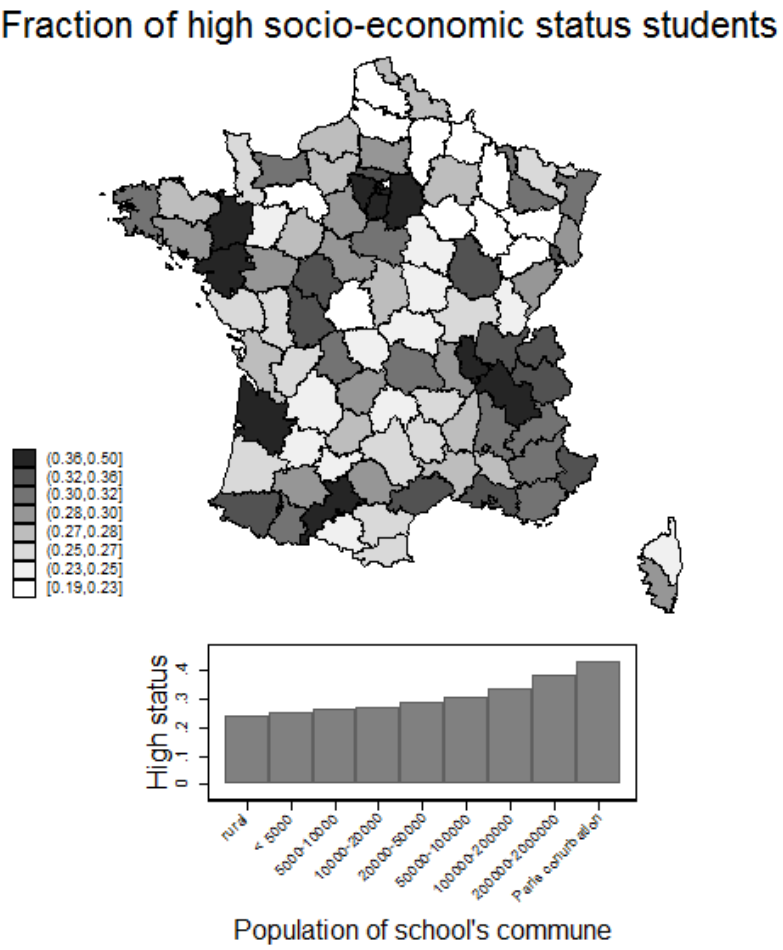

Figure 3. Fractions, by geographic location and community size, of secondary school students in the 2004-2006 *Base Centrale de Scolarité* administrative database with parents belonging to the privileged socio-economic categories listed in footnote 4.

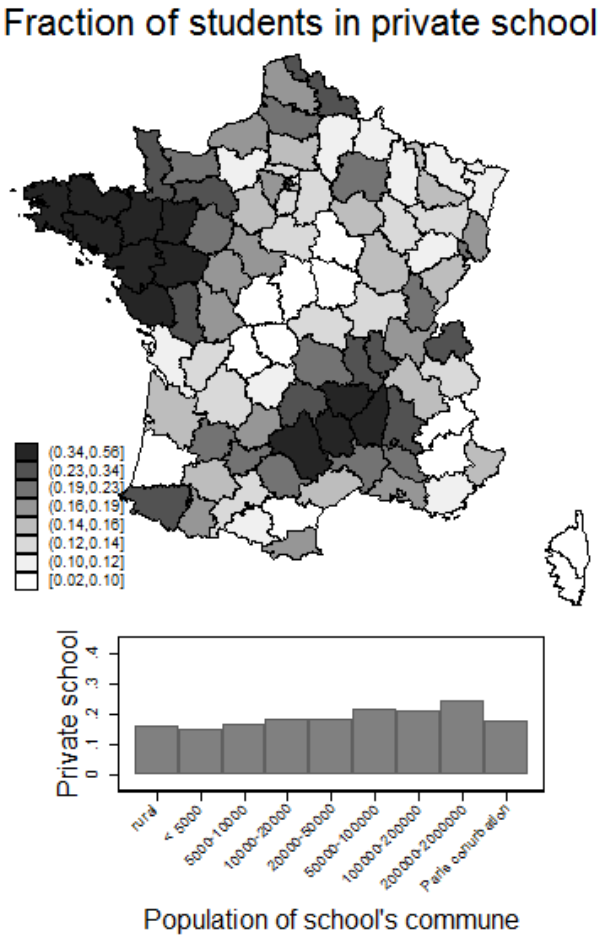

Figure 4. Fractions, by geographic location and community size, of secondary school students enrolled in private schools in the 2004-2006 *Base Centrale de Scolarité* administrative data.

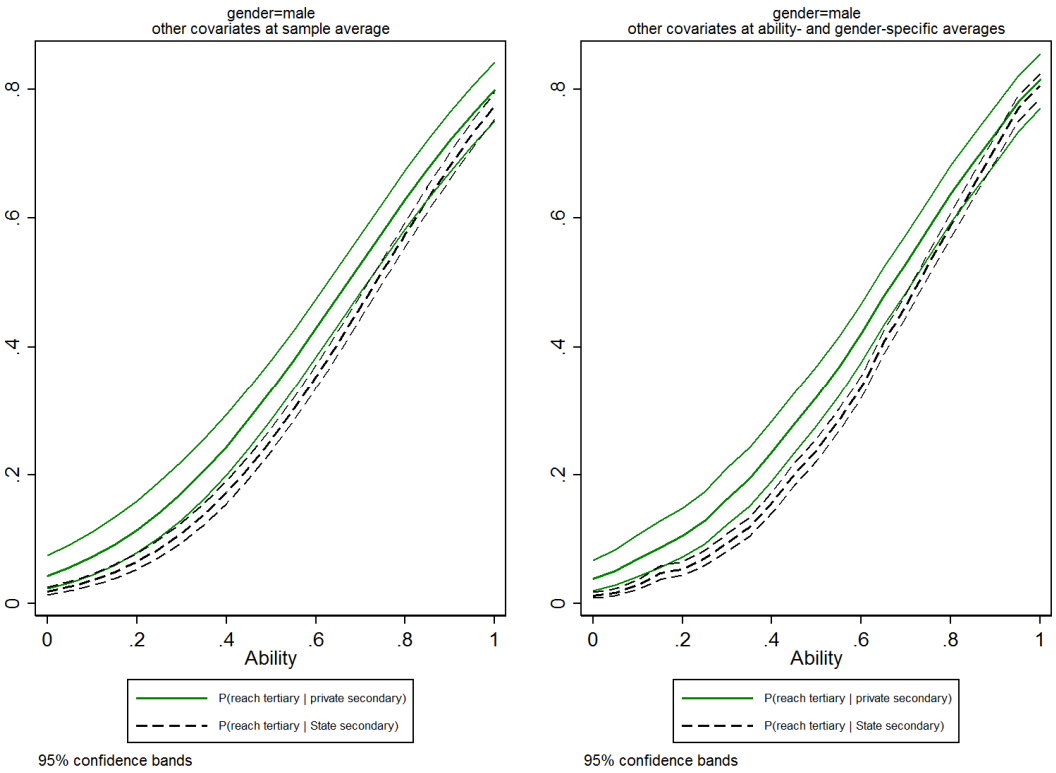

Figure 5. Estimated predictions of success in secondary school based on the estimates in Table 4, assessed for male students at the overall or conditional means of other variables.

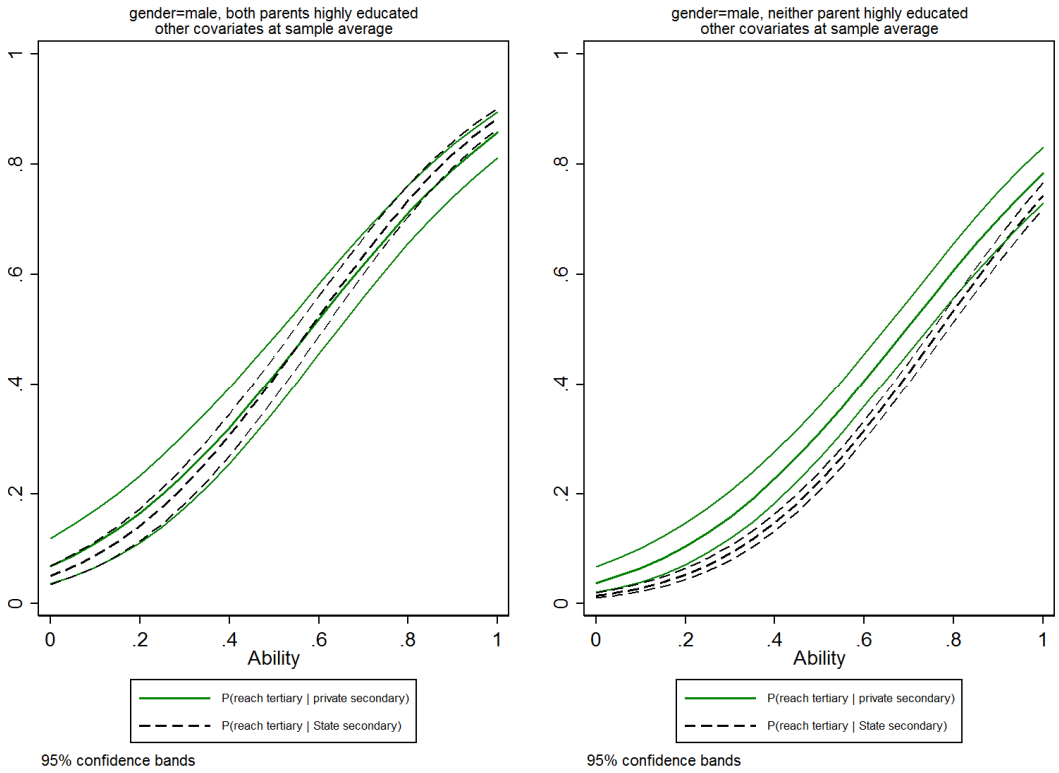

Figure 6. Estimated predictions of success in secondary school for male students, based on specific values of other covariates and the estimates in Table 4.

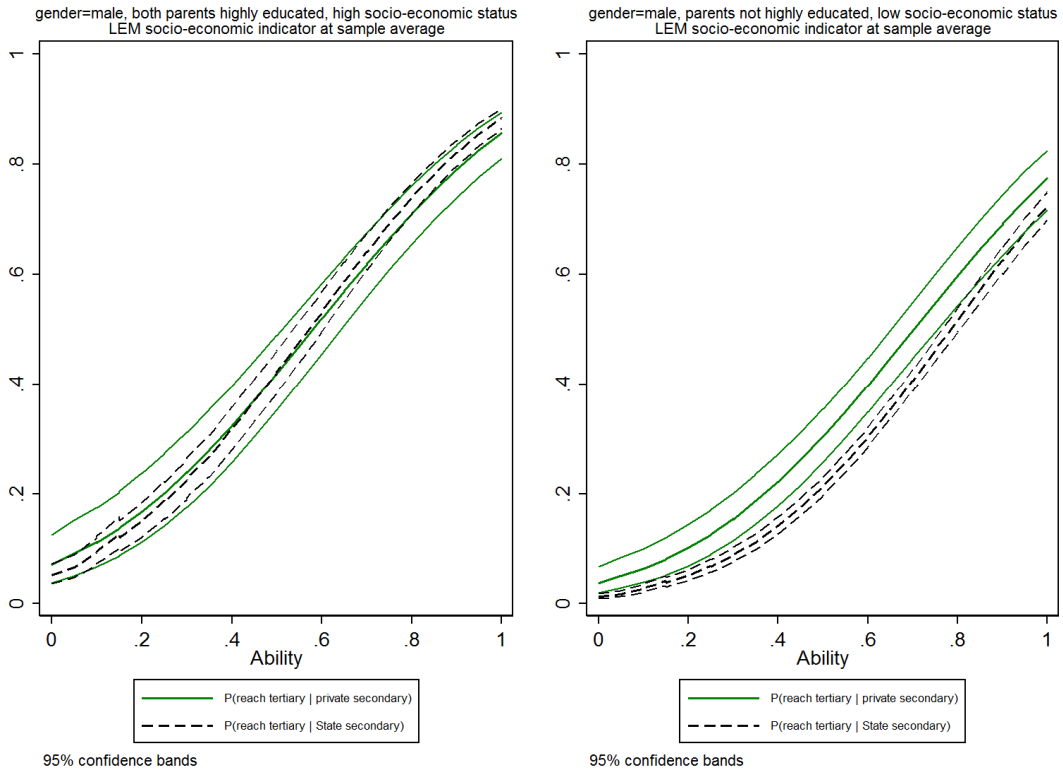

Figure 7. Estimated predictions of success in secondary school for male students, based on specific values of other covariates and the estimates in Table 5.

Table 1a: Private secondary enrolment, linear regressions (p-values on robust standard errors)

	(1) Private secondary OLS	(2) Private secondary OLS	(3) Private secondary OLS	(4) Private secondary OLS	(5) Private secondary OLS
Ability	0.004	-0.009	-0.083***	-0.014	-0.049***
	(0.85)	(0.65)	(0.00)	(0.40)	(0.01)
Financial problems				-0.029***	-0.005
				(0.00)	(0.57)
Private pre-secondary				0.555***	0.503***
				(0.00)	(0.00)
Constant	0.190***			0.090***	
	(0.00)			(0.00)	
SES fixed effects	No	No	Yes	No	Yes
LEM fixed effects	No	Yes	Yes	No	Yes

Table 1b: Private secondary enrolment, probit regressions (p-values on robust standard errors)

	(1) Private secondary probit	(2) Private secondary probit	(3) Private secondary probit	(4) Private secondary probit	(5) Private secondary probit
Ability	0.015	-0.039	-0.362***	-0.090	-0.308***
	(0.85)	(0.65)	(0.00)	(0.32)	(0.00)
Financial problems				-0.166***	-0.037
				(0.00)	(0.47)
Private pre-secondary				1.774***	1.769***
				(0.00)	(0.00)
Constant	-0.879***			-1.354***	
	(0.00)			(0.00)	
SES fixed effects	No	No	Yes	No	Yes
LEM fixed effects	No	Yes	Yes	No	Yes

Table 2: Private education and access to tertiary education, OLS and 2SLS linear models with fixed effects (robust p-values)

	(1) Tertiary enrolment OLS	(2) Tertiary enrolment OLS	(3) Private secondary OLS	(4) Tertiary enrolment 2SLS
Ability	0.950*** (0.00)	0.956*** (0.00)	-0.046** (0.01)	0.965*** (0.00)
Private secondary	0.072 (0.12)	0.061 (0.18)		0.067 (0.35)
Private secondary * Ability	-0.076 (0.24)	-0.087 (0.18)		-0.164* (0.10)
Father education	0.047*** (0.00)	0.048*** (0.00)	-0.006 (0.54)	0.048*** (0.00)
Mother education	0.057*** (0.00)	0.059*** (0.00)	0.004 (0.69)	0.060*** (0.00)
Female	0.061*** (0.00)	0.061*** (0.00)	-0.009 (0.15)	0.061*** (0.00)
Financial problems	-0.046*** (0.00)		-0.005 (0.58)	
Private pre-secondary	-0.034** (0.01)		0.503*** (0.00)	
Constant	-0.061 (0.28)	-1.017*** (0.00)	-0.040 (0.90)	-0.264* (0.08)
SES fixed effects	Yes	Yes	Yes	Yes
LEM fixed effects	Yes	Yes	Yes	Yes

Table 3: Private education and access to tertiary education: OLS and 2SLS linear models with interpretable covariates (robust p-values).

	(1) Tertiary enrolment OLS	(2) Tertiary enrolment OLS	(3) Private secondary OLS	(4) Tertiary enrolment 2SLS
Ability	0.961*** (0.00)	0.993*** (0.00)	-0.030* (0.09)	1.007*** (0.00)
Private secondary	0.080* (0.07)	0.090** (0.04)		0.143** (0.05)
Private secondary * Ability	-0.087 (0.16)	-0.105* (0.09)		-0.186* (0.07)
Father education	0.054*** (0.00)	0.087*** (0.00)	0.003 (0.72)	0.087*** (0.00)
Mother education	0.064*** (0.00)	0.082*** (0.00)	0.006 (0.48)	0.082*** (0.00)
Female	0.063*** (0.00)	0.061*** (0.00)	-0.011* (0.08)	0.061*** (0.00)
LEM privileged families	0.113** (0.02)	0.178*** (0.00)	-0.043 (0.19)	0.179*** (0.00)
Private pre-secondary	-0.029** (0.03)		0.508*** (0.00)	
Financial problems	-0.057*** (0.00)		-0.018** (0.02)	
Privileged	0.070*** (0.00)		0.001 (0.94)	
LEM problems	0.001 (0.96)		0.047*** (0.00)	
Privileged * LEM problems	-0.040 (0.33)		0.079*** (0.01)	
LEM private schooling	0.110*** (0.00)		0.550*** (0.00)	
Constant	-0.296*** (0.00)	-0.319*** (0.00)	-0.005 (0.78)	-0.328*** (0.00)

Table 4: Private education and access to tertiary education: switching probit with interpretable covariates, socio-economic status excluded (robust p-values).

	(1) Private secondary	(2) Tertiary enrolment | Private secondary	(3) Tertiary enrolment | State secondary
Ability	-0.178* (0.07)	2.553*** (0.00)	2.836*** (0.00)
Father education	0.016 (0.75)	0.008 (0.92)	0.322*** (0.00)
Mother education	0.037 (0.42)	0.274*** (0.00)	0.217*** (0.00)
Female	-0.061* (0.06)	0.099* (0.07)	0.193*** (0.00)
LEM privileged families	0.096 (0.59)	-0.063 (0.84)	0.702*** (0.00)
Private pre-secondary	1.655*** (0.00)		
Financial problems	-0.112** (0.02)		
Privileged	0.014 (0.81)		
LEM problems	0.474*** (0.00)		
Privileged * LEM problems	0.321** (0.03)		
LEM private schooling	2.781*** (0.00)		
Constant	-2.061*** (0.00)	-1.750*** (0.00)	-2.399*** (0.00)
rho		-0.092** (0.04)	0.121** (0.03)

Table 5: Private education and access to tertiary education: switching probit with interpretable covariates, socio-economic status included (robust p-values).

	(1) Private secondary	(2) Tertiary enrolment | Private secondary	(3) Tertiary enrolment | State secondary
Ability	-0.180* (0.07)	2.535*** (0.00)	2.772*** (0.00)
Father education	0.012 (0.81)	-0.026 (0.75)	0.226*** (0.00)
Mother education	0.036 (0.44)	0.260*** (0.00)	0.164*** (0.00)
Female	-0.061* (0.06)	0.104* (0.06)	0.198*** (0.00)
LEM privileged families	0.093 (0.60)	-0.125 (0.70)	0.622*** (0.00)
Private pre-secondary	1.655*** (0.00)		
Financial problems	-0.111** (0.02)		
Privileged	0.021 (0.70)	0.075 (0.28)	0.208*** (0.00)
LEM problems	0.474*** (0.00)		
Privileged * LEM problems	0.322** (0.03)		
LEM private schooling	2.778*** (0.00)		
Constant	-2.060*** (0.00)	-1.743*** (0.00)	-2.370*** (0.00)
rho		-0.089* (0.05)	0.137** (0.01)