School Choice and Student Wellbeing

Colin P. Green
Lancaster University

María Navarro-Paniagua
Lancaster University

Domingo P. Ximénez-de-Embún
Universidad de Zaragoza

María-Jesús Mancebón
Universidad de Zaragoza

Abstract

The debate over private versus public provision of schooling remains contentious. A large literature has developed focusing on the relative educational performance of different school types. Beyond these, important outcomes, variations in schooling may have direct effects on students' contemporaneous welfare. For instance, private schools may generate better performance by requiring greater effort from students and exerting more pressure upon them. This paper uses data from three Spanish regions to examine how private schooling affects one domain of student wellbeing, satisfaction with education. While naïve estimates suggest a positive effect of private schooling on student satisfaction. These effects disappear, and even turn negative, after introducing controls for school quality and/or taking into account selection on unobservables. This suggests that whilst private schools may generate better educational outcomes, they do not necessarily maximize, and may even reduce, adolescents' contemporaneous welfare.

JEL classification: I21, I29

Keywords: school choice, student satisfaction, instrumental variables

Acknowledgements: The authors would like to thank participants at the 3rd IWAEE and the 2011 AEDE meetings for helpful comments. María Navarro gratefully acknowledges the Spanish Ministry of Science and Innovation Postdoctoral Grant 2008-0583 and CYCIT Project ECO2008-06395-C0503/ECON for their financial support. Domingo P. Ximénez-de-Embún gratefully acknowledges the Research Projects ECO2009-09332 and ECO2009-13675 for their financial support. María Jesús Mancebón gratefully acknowledges Projects SEC2000-0581 and P148/2001 for the financial support received.

I. INTRODUCTION

The debate over private versus public schooling continues to be highly contentious. As part of this a large literature has developed that aims to examine the effect of school type on student outcomes (see for instance Coleman *et al*., 1982; Witte, 1992; Hoxby, 2003). One key point of comparison has been student test score performance. Comparisons of test score performance between public and private schools, including Catholic schools, typically reveal a large difference in favor of private providers. The chief empirical issue is identifying differences in educational treatment effects across school types separately from confounding factors such as school choice. Again, a substantial literature seeks to disentangle these channels through which private schools may `outperform' public schools primarily with the aim of identifying the underlying treatment effect of private schooling (see for instance Evans and Schwab, 1995; Neal, 1997; Alonji et al. 2005a, 2005b). While it remains an open and contentious question, the general view is that private schools cause higher educational performance.[1]

It is worth noting that there are a number of nuances to these findings. These results vary across types of private schooling, for instance Catholic, Charter etc; student characteristics such as ethnicity and socio-economic background; specific domain of educational attainment (math, science or literacy); and other educational outcomes such as high school completion or college attendance. For instance, Figlio and Stone (1997) find that religious schools are modestly inferior in mathematics and science to state run schools, while nonreligious schools are substantially superior. Altonji, Elder and Taber (2005a) find that private catholic schools substantially increase the probability of graduating from high school and college enrollment but do not improve test scores in reading and math. In the latter case, the observed higher catholic school mathematics scores were entirely explained by modest positive selection on unobservables.

Any effect of private schooling on educational quality is clearly important. Educational attainment is a strong predictor of a range of life outcomes including wages

[1]It is worth noting that a recent special issue on charter schools in the Economics of Education Review highlights that the evidence on the aggregate effect of charter schools on student achievement is inconclusive. There exist studies of specific jurisdictions that find that charters outperform traditional public schools, while others find no difference between charters and 'traditional' schools, and there are some that even find lower performance in charter schools (Toma and Zimmer, 2012).

(Angrist and Krueger, 1991; Card and Krueger, 1992; Harmon and Walker, 1995, 2000; Card, 1999; Dearden et al., 2002, Kim, 2011), employment (Currie and Thomas, 2001), social mobility (Manski, 1992; Schneider, 2010) and wellbeing in later life (Oreopolous and Salvanes, 2011). As well as affecting these longer term outcomes, which clearly influence individual welfare, the type of school attended has the potential to influence student welfare in a direct and contemporaneous manner. Private schools may be under greater pressure to attract students by signaling superior educational performance. One way in which private schools may, in practice, improve test score performance is by requiring greater effort from, and exerting more pressure on, students. This may reduce student wellbeing even while it improves educational performance. Given that it has been demonstrated that adolescents' feelings of unhappiness and dissatisfaction are associated with a number of negative outcomes such as engaging in risky behavior (Levy-Garboua, Lohac and Fayolle, 2006), it seems appropriate to examine how private schooling influences student wellbeing.[2] The contribution of this paper is to examine how school choice affects student wellbeing, focusing on one particular dimension, student satisfaction with education.

Specifically, we use student level data from three Spanish regions to attempt to identify the causal estimate of private schooling on student satisfaction amongst high school students. The particular form of private schooling we examine, discussed in more detail below, is in many ways close to Catholic schooling in other jurisdictions. These schools are previously independent Catholic schools that now receive public subsidies but are more expensive to attend and operate autonomously with respect to hiring, and to some extent, student selection. Our identification strategy is similar in spirit to Card (1995) and relies upon variations in the geographic availability of these schools. While naïve estimates reveal that private schooling is associated with higher levels of student wellbeing, we demonstrate that once school characteristics and unobserved heterogeneity are taken into account, students enrolled in public schools are more satisfied with their education. Moreover, in our most complete specification we find that private schooling is associated with lower satisfaction with the school. We

[2]Although it must be recognized that research exists showing that Catholic schooling reduces some forms of teen risky behavior such as sexual activity, arrests and hard drug use (Figlio and Ludwig, 2000).

subsequently demonstrate that these estimates are robust to the use of an alternative instrumental variable and the potential violation of our exclusion restriction. Our results suggest that whilst private schools may generate superior educational outcomes, they do not necessarily maximize students' contemporaneous welfare.

This paper is related to a small literature on how schooling influences child and adolescent wellbeing. Gibbons and Silva (2011) analyses the determinants of children's wellbeing at school using data from the Longitudinal Survey of Young People in England (LSYPE). They investigate to what extent parents' and children's views of their school are linked to test-score based performance, and to what extent parents' judgments of school quality are linked to their child's happiness. They find that parents put more weight on schooling outcomes, such as test scores, relative to child satisfaction when they choose a school.[3]

The remainder of the paper is organized as follows. The next section describes the data used and the institutional setting. In section 3, we briefly describe the empirical approach undertaken in this paper. Section 4 presents the results on school choice and other determinants on student's satisfaction, and the final section concludes.

II. INSTITUTIONAL BACKGROUND AND DATA

School Choice in Spain

One of the defining characteristics of the secondary schooling system in Spain is its dual nature consisting of predominantly public sector provision but with a substantial private sector. The largest segment of the latter are publicly subsidized private schools. These schools were formerly fully private and run by the Catholic Church. Whilst these schools remain privately owned and run, they are now partially financed by regional education authorities and the central government.[4] The distribution of students enrolled in secondary education among different school types in Spain in 2002 was as follows: public school 67%, publicly subsidized private schools 26%, while there is a smaller completely independent sector 7% (Spanish Ministry of Education, 2002). In this paper,

[3] There is also a small literature on student satisfaction and higher education, see for instance Bandiera et al. (2009).
[4] This occurs through the 1985 Right to Education Act (LODE). For a detailed description and historical evolution of the Spanish non-higher education system (see Bernal, 2005).

we focus on comparing the public sector with the publicly subsidized private schools.[5] As a result, for simplicity from herein we refer to these schools as private schools.

These private schools do not charge tuition *per se* but families pay a 'voluntary' contribution per student (on average 323 Euros p.a. in 2011/2012) which in practice represents a tuition fee (INE, 2013). In addition to this, there are a range of fees that apply to regular subjects conducted during school time. The expectation is that all students undertake these activities and these subjects are not offered at public schools.[6] Finally, there are extra-curricular activities and service provision that is offered in both public and private schools. These include school provided lunches, and extra lessons such as sports, arts and languages. These attract a charge in both public and private schools, however charges are substantially larger in private schools. The fees for this are on average 156 and 357 Euros per year per student in public and private schools, respectively. In addition, there is less variety of provision of these activities and services in public schools. Taken together this suggests a substantial difference in the cost of attending a public or private school. According to INE (2013) the annually total average cost per student of attending a private school was 1,426 Euros in the academic year 2011-2012 versus 560 Euros of attending a public school. It should be noted that both of these are substantially lower than attending an independent private school, where fees were on average 4,405 Euros per student per year during the 2011-2012 academic year.

There are a few additional ways in which public and private schools differ. First, although there is in theory no difference in admission criteria between public and private schools, they differ in terms of how they cope with excess demand. Discretionary admissions practice by school principals have been forbidden since 2002/2003, but at the time of admission for the students in our survey principals at private schools that were oversubscribed could use discretion with marginal students on the basis of socio-demographic characteristics. In addition, a number of indirect disincentives to application and admission existed that would influence the type of student attending these schools; these include the higher fees, but also costs associated with mandatory uniforms and barriers to entry for students who came from a family that was not Catholic. Together this makes it likely that private schools in our survey period

[5] The fully independent sector is also of clear interest; however our data has very poor coverage of this sector.
[6] These activities occur typically between 12:00 and 12:40pm.

selected students, both explicitly and implicitly, on the basis of socio-economic characteristics (Teese et al, 2006). These factors which act as impediments to school choice are likely to reduce the level of active competition between public and private schools.[7]

The location of private schools represents a key element of our identification strategy, set out below. It is based on there being a random element to where private schools are situated. Almost all the private schools we examine were formerly Catholic run schools. These schools developed out of monasteries and as such, their location is historically chosen. The current location of these schools is typically in the center of cities/towns (i.e. near the church). Whilst there is still a potential for this to be correlated with local demand for private schooling, it seems unlikely that the location choice is functionally related to the current regional distribution of demand. It is still possible that families with, or planning to have, children move or choose their location so as to be within proximity to one of these schools. While, we cannot rule this out, Spain is well known for its low mobility both within and across regions. Geographical mobility is much lower in Spain than in other countries such as France, the UK or the US. Comparing inter county/province annual mobility rates, 4.3% of people in the US move between counties (Census Bureau 2012), the corresponding figure is 3.1% for the UK (ONS 2011), but only 1.1% in Spain (INE 2011). The inter-regional migration rate for people aged 15-64 is 2.1% in France and only 0.2% in Spain (Bentolila *et al*., 2012). The fraction of people who have never moved after leaving the parental home is equal to 23% but only 8% in France. Together this, we argue, leads to variation in the regional availability of private schooling. It is this variation that we rely upon in later empirical work and we discuss this further in the econometric methodology.

[7]Another point of variation worth noting regards teacher hiring practices across the two sectors. Teachers in public schools are primarily civil servants that have had to pass a national/regional examination (actual practices depends on when they were hired) whereas teachers in private schools are hired at the discretion of the school principal.

Data

Our empirical analysis employs census data from secondary school students in the final year of secondary schooling in the Spanish regions of Aragon, Asturias and Extremadura in 2002. The questionnaire was answered by 17,297 students (79% of all enrolled students). 13,288 of them attended public schools and 4,009 attended private schools. The questionnaire provides data on a range of characteristics. These include basic demographics (age, gender), a range of information on socioeconomic background (father's and mother's occupation; family income), but also a range of information that is specifically useful in our context. First, we have information on the academic performance of students (current and previous year's marks), these come from annual tests. These tests are conducted at a school level with the only implication being that very poor performance may lead to grade retention. In addition, the students were asked a range of questions related to their perception of future academic prospects. Students were also asked a range of questions regarding their effort (hours spent in independent study/homework per week). Students were asked for the reasons that the school was chosen, these include proximity, tradition, prestige of school, and if it was the only school available. Much of the data is reported in categorical form, the manner in which they are included in the control vector of our empirical analysis largely reflects this.

The data has a wide array of school characteristics that include amenities (school equipment and infrastructure, material provided, whether central heating works) and variables with respect to teacher's academic formation, interests and ability to motivate the students. Many of these characteristics are likely to be highly correlated, and without strong priors on the inclusion of specific characteristics we adopt a factor approach to including these characteristics. This approach, and the robustness of our results to it, are discussed in the empirical methodology and results.

Most importantly, for our purposes, it also contains a range of student satisfaction questions related to the education and school experience. These are answered on a Likard scale which ranges from 1, 'not satisfied at all' to 5, 'completely satisfied'. The key variable of interest is how satisfied are you with the education you receive at the school. Moreover, in additional analysis we consider responses to the following sub-domains of student satisfaction: satisfaction with teaching; satisfaction

with, and enjoyment of, the learning experience; it is nice to study at this school and; I feel proud of my school.

Figure 1 shows the histograms with the distribution of satisfaction levels across the main satisfaction variable according to whether the student was in a private or public school. These demonstrate that in the raw data the mass of student satisfaction is generally to the right hand side for private school students. This suggests that private students are more satisfied with the education they receive.

Table 1 displays the descriptive statistics of the variables collected through the questionnaire and employed in this study. We report these separately for public and private school students. Again this shows that, on average, private school students are more satisfied with their educational experience. From the data we can see that there are clear socio-economic differences between parents who send their children to public and private schools. For instance, 48% of the families that send their children to private schools earn more than 1800 € compared to the 27% that send their children to public schools. Just 10% of the families that earn less than 1200 € send their children to private schools whereas 27% of those families send their children to public schools. 64% of the parents that send their children to private schools are white collar workers, compared to the 39% of the parents that send their children to public schools. Finally, we have information related to student mobility. There is little difference between private and public schools in whether students moved schools in the current year, while private school students are slightly more likely to have changed schools in the past 2 years.[8]

INSERT FIGURE 1

INSERT TABLE 1

III. EMPIRICAL APPROACH

Student satisfaction can be thought of in terms of a utility function, *w*, such that

$$w = w(m, e, x, s) \tag{1}$$

[8] Excluding these movers from our analysis does not change our results.

Where m is student marks, e is student effort, x is a vector of family and student characteristics and s is a vector of school and teacher characteristics. Our main dependent variable is the ordered response to the student satisfaction question, $EDUCSAT_i$. In analyzing our satisfaction data, we apply a Probit OLS (POLS) that consists in deriving Z values of a standard normal distribution that are associated with the cumulative frequencies of the different k categories of an ordinal dependent variable (for a detailed discussion of this method see Van Praag and Ferrer-i-Carbonell, 2004).[9] Then the expectation of a standard normally distributed variable is taken for an interval between those two Z values that correspond to the class of the value of the original variable. Thus if the true unobserved continuous variable is $EDUCSAT_i^*$ where the observed $EDUCSAT_i = s$ if $\kappa_{S-1} < EDUCSAT_i^* < \kappa_S$ for $i = 1,.....,n$. $EDUCSAT_i$ is the ordered response indicating their subjective evaluation of satisfaction with education where s denotes the total number of distinct response categories of satisfaction with education (5 in our case).

Then the conditional expectation of the latent variable is given by:

$$EDUCSAT_i' = E\left(u \middle| \kappa_{S_i-1} < u \le \kappa_{S_i}\right) = \frac{n\left(\kappa_{S_i-1}\right) - n\left(\kappa_{S_i}\right)}{N\left(\kappa_{S_i}\right) - N\left(\kappa_{S_i-1}\right)} = \frac{n\left(\kappa_{S_i-1}\right) - n\left(\kappa_{S_i}\right)}{p_S} \qquad (2)$$

The models that we estimate are variants of the following:

$$EDUCSAT_i' = \beta_0 + \beta_1 \Pr ivate_i + \beta_2 Marks_i + X_i'\gamma + S_i'\delta + \varepsilon_i \qquad (3)$$

where *Private* is a dummy variable that takes value 1 if the student attends a private school and 0 otherwise, $Marks_i$ is a dummy variable which takes value 1 if the student gets good marks (A-C) and 0 otherwise. X_i is a vector of socio-demographic variables and parental background characteristics (gender, age, father's and mother's job, monthly household income), years in the same school, reason the school was chosen, number of weekly hours student's spend studying, student's self-confidence about attaining a university degree. S_i is a variable that collapses a set of variables of school characteristics. We do this using principal component analysis, in particular, polychoric

[9] We stress that the tenor of our results are unchanged by ordered probit estimation, or generalized threshold model estimation.

correlation matrices to take into account the discrete and ordered nature of the variables that we collapse into one factor (and capture its common movement).[10] A point of interest is the distinction between the effect of school type on student satisfaction not conditional and conditional on school quality. Kim (2011) refers to these as the gross and net effect of school type on student outcomes, and we adopt this terminology in our results. This distinction is important as school quality is likely to vary markedly across private and public schools. In this sense, the gross effect of schooling provides the impact of private schooling on student satisfaction where the direct effect and this quality effect are combined. The net effect is the impact on student satisfaction conditional on private and public schools being of equal quality. This latter effect might capture the role of factors such as increased pressure on students which should not be directly related to school quality.

Non-random selection of students into school types provides the main source of difficulty in interpreting the coefficient on private schooling as causal. Specifically, a concern is that more academically minded, school oriented, students are likely to enter private schooling. This could be, for instance, because families who value education highly are more likely to devote extra resources, pay higher fees, for their children to attend private schools. These factors and others, which are either not observed or observed imperfectly, are likely to influence child outcomes independently of the school sector.

Our approach to this identification problem is to instrument for type of school attended. A range of instrumental variable strategies have been used in previous research on the effect of school type. For instance, whether the family is Catholic (Evans and Schwab, 1995; Neal, 1997; Kim, 2011), the contemporaneous density of Catholics in a county (Evans and Schwab, 1995; Neal, 1997) and the historical density of Catholics in a county (Cohen-Zada, 2009; Cohen-Zada and Elder, 2009; Kim, 2011) have all been used as an instrument for Catholic high school attendance.

[10] This enters as a factor that is generated by fifteen discrete descriptors of the school covering infrastructure, lighting, equipment, library quality, central heating provision, organizational and teacher quality. We conducted a diagnostic test whereby we tested the suitability of our polychloric factor against the descriptors used separately via a Likelihood-ratio test. This test, which has a χ^2 distribution indicates that the factor approach is preferred χ^2 (1.10^5 Prob> χ^2 =0.0000).

Naturally, none of these instruments are without problems. Most notably, Altonji, Elder and Taber (2005b) raise a number of objections to the use of Catholic religion, proximity to Catholic schools, and the interaction between religion and proximity as exogenous sources of variation in school choice. While, in the case of Wisconsin, Kim (2011) presents evidence that suggests that Catholic religion can be treated as exogenous. Finally, Cohen-Zada and Elder (2009) argue that historical Catholic density is less likely to be endogenous than current shares.

In practice, our choice of instrument is limited by both the data and the institutional setting. We do not observe family religious affiliation or ethnicity, and as we do not have postcode of residence of the student we cannot compute the current density of Catholic families. As Catholicism was the religion of state until 1979, there would be little historical regional variation in religious density. Due to very low rates of immigration up to our time of study, only 1% of the population were immigrants in 1999, there was still little variation in religious affiliation at the time of our survey.

This leads us to use another source of variation, geographic private school availability in the spirit of Card (1995). Specifically, our instrumental variable is whether there is at least one private school in the area of residence. Our estimating equations are:

$$\Pr ivate_i = \alpha_0 + \alpha_1 Availability_i + X_i^{'}\lambda + \xi_i \qquad (4)$$

$$EDUCSAT_i' = \beta_0 + \beta_1 \Pr ivate_i + X_i^{'}\gamma + \varepsilon_i \qquad (5)$$

where for simplicity we collapse all other explanatory variables into the vector X and estimate (4) and (5) by two stage least squares. The validity of this instrument is conditional on two main assumptions. First, there is quasi-random variation in the location of our private schools. This results from historical location choice when these schools were initially monasteries. Second, that parents do not systematically change residence to influence school admission. While, we argue that school location choice is unlikely to be related to important current student characteristics, and note the very low mobility in Spain, both of these assumptions are naturally untestable and open to scrutiny. Recognizing this point we adopt a range of tests that aim to examine the robustness of our main estimate of interest. As a first step, we use an alternative instrument which aims to capture the level of school competition for pupils. Following

Neal (1997) we use the number of private schools per square mile in the area surrounding the school attended. We observe the postcode of schools, using this information the schools are geo-localized and Vincenty's formula is used to calculate the distance between two points.

As an additional check, we exploit the method set out by Conley, Hansen and Rossi (2012) to examine whether we can provide inference regarding private schooling effects even in the situation where our exclusion restriction is not completely valid.

A final point regarding our estimation strategy is worth making. We have included marks as a regressor due to a concern that high achievers are more likely to attend private schools. This could bias the private school coefficient on school satisfaction downwards if these students have, for instance, naturally higher expectations. One potential problem with our approach is that, in practice, the direction of causation between marks and satisfaction is unclear. Students that get good marks may be more satisfied or more satisfied students may be more likely to get better marks because they are more optimistic and have a good work ethic. We examine this by using an instrumental variable strategy, where marks are instrumented with the student's marks of the previous year. The underlying assumption is that lagged educational performance should be a strong predictor of current performance, but should not affect student satisfaction in the current year.

$$\Pr ivate_i = \alpha_0 + \alpha_1 Availability_i + X_i^{'}\lambda + v_{1i} \quad (6)$$

$$Marks_i = \delta_0 + \delta_1 Marks_{it-1} + X_i^{'}\rho + v_{2i} \quad (7)$$

We implement a two stage procedure. In the first stage we jointly estimate Equations (6) and (7) by a Bivariate Probit Model. The predicted values from the former estimation $\Pr \hat{ivate}_i$ and $\hat{Marks}_i$, are used in place of $\Pr ivate_i$ and $Marks_i$, in the second-stage estimation of Equation (3 or 5). To gain correct standard errors we then perform a bootstrap procedure with 1,000 repetitions on the second stage student satisfaction equation.

IV. RESULTS

Table 2 reports our initial estimates of private schooling's effect on student satisfaction. In the first column, we report a naïve estimate that only controls for marks along with private schooling. These reveal a statistically significant higher level of satisfaction for students who attend private schools conditional on student marks. Hence, the previous pattern of higher student satisfaction among private school students is not driven by variations in student attainment. In fact this point estimate is slightly larger than the raw differential observed in Table 1.

INSERT TABLE 2

The next column introduces a range of controls for parental characteristics, student age and gender, along with region that the student lives in. The private schooling effect remains positive and statistically significant. The third column includes a range of additional controls including self-assessed ability, time at the school and reasons for attendances. An important issue is that private and public schooling may differ fundamentally in the effort requirements they make of students. We have no information on this type of variation *within* school, but students answer a question regarding how many hours independent study outside of school they perform. This is entered as a system of dummies in the last column (the responses are coded in these categories in the data), where the omitted case is 0-5 hours on average per week. There is little variation in the relationship between satisfaction and study hours up to 15 hours a week. Those who undertake very long study hours (>15 hours per week) are in fact more satisfied with their school. We admit that we are unable to completely capture variations in student effort, for instance within school effort or intensity/difficulty of homework. However, whilst including these controls along with the others listed above does reduce the magnitude of the private school effect on student satisfaction, it remains positive and statistically significant. The estimate of private schooling from this specification corresponds to what is labeled as the gross effect in later tables.

The fourth column introduces our control for school quality. Not surprisingly, better school characteristics are positively associated with student satisfaction, students in schools of higher quality report higher satisfaction with education. What is marked is the effect of including this control on the relationship between private schooling and student satisfaction. The point estimate essentially becomes negative and statistically

significant. This suggests not only that the earlier observed satisfaction premium associated with attending a private school reflects variation in the attributes of schools, but that the effect of private schooling is to reduce student satisfaction once these variations in characteristics are accounted for. The net association between private schooling and student satisfaction is negative.

INSERT TABLE 3

The results reported in Table 3 for the other domains of student satisfaction we observe follow a similar pattern. Broadly, there is a satisfaction premium in the naïve estimates which remains positive (satisfaction with teaching, satisfaction with learning experience) or statistically zero ('it is nice to study at this school', 'I feel proud of my school') in the most complete specification that does not net out school quality. Once school quality is controlled for the effect of private schooling is negative on all these domains of student satisfaction.

INSERT TABLE 4

The issue of non-random school choice means that these estimates cannot be treated as causal. Before moving on to estimation approaches that aims to explicitly address selection into school type on unobservables it is informative to assess the likely magnitude and sign of this bias in our P(OLS) estimates. We do this by using the methodology developed by Altonji, Elder and Taber (2005a). This approach is based on measuring the ratio of selection on unobservables to selection on observables that would be needed to attribute the entire effect of Private School attendance to selection bias. More details are provided as a note to Table 4. Along these lines Elder and Jepsen (2011) present evidence that observed higher test scores amongst Catholic school students is driven entirely by bias from selection on unobservables.

The results from this approach are reported in Table 4. The key information is in columns 5 and 6. Column 5 provides the level of bias due to observable characteristics, while column 6 of Table 4 reports how large selection on unobservables would need to be in order to attribute the entire effect of private schooling on student satisfaction to selection bias. This is reported for both the gross and net effect. For the gross effect, selection on unobservables would only need to be very small, 0.03, for us to be able to attribute the entire positive effect of private schooling on Satisfaction to selection bias.

This suggests that the positive private schooling gross effect is likely due to selection. For the net effect, the estimated bias shows that selection on unobservables would need to be 0.1 times smaller than selection on observables. Moreover, the fact that the implied ratio is negative means that selection on observables and unobservables would have to be of opposite signs to be consistent with a true private schooling effect of zero. This direction of selection appears unlikely in this context. Together this means that the net effect of private schooling on satisfaction cannot be attributed totally to selection bias.

INSERT TABLE 5

With this said, we attempt to examine selection on unobservables by utilizing an instrumental variable, private school availability, as a source of exogenous variation in private school attendance. The first two columns of Table 5 presents the first stage diagnostics and corresponding IV estimates for our main dependent variable of interest along with the four additional domains of satisfaction. In each case we report IV estimates of the gross and net effect of private schooling on satisfaction. The first stage demonstrates that availability is a strong predictor of private school attendance and passes standard tests for weak instruments. In terms of the gross effect of private schooling on satisfaction, our IV estimates suggest the effect is essentially not statistically different from zero (with the exception of feeling pride in your school). Hence, earlier positive gross associations between private school and student satisfaction may have been spurious. The corresponding IV estimates of net effects on student satisfaction are generally negative, but not statistically significant at standard levels. The positive effect on school pride is now not statistically different from zero.

The next set of estimates employs our alternative instrument, the level of school competition in a given geographic area proxied by the number of private schools per two square miles. Again the diagnostics from the first stage appear sound. For both gross and net effects of private schooling this source of identification paints a more dramatic negative pattern between private schooling and student satisfaction. These estimates suggest that private schooling reduces student satisfaction both before and after controlling for variations in school quality. In the final column, we use both instruments together, and again present first stage diagnostics and in addition provide the over-identification test that is now available. While again passing tests for weak

instruments, for the net effect models the Hansen tests do not always pass standard critical levels and hence should be viewed with caution. In these models, gross effects of private schooling range from positive and statistically insignificant (school pride) through negative and insignificant and negative and statistically different from zero. Net effects suggest a broadly negative and statistically significant pattern. Taken together our IV estimates suggest that private schooling has either no or a negative gross effect on student satisfaction, and a negative net effect once school quality is controlled for.

INSERT TABLE 6

While our instruments pass standard diagnostic tests the exclusion restrictions are untestable in the case of the exactly identified model, and only testable under certain assumptions in the overidentified model. Nonetheless, Conley et al (2012) demonstrate that it is possible to provide economically informative inference even in the case that, for instance, private school availability has a direct effect on student satisfaction:

$$EDUCSAT_i = \alpha_i + \beta \,\mathrm{Pr}\, ivate_i + \eta X_i + \gamma Z_i + \varepsilon_i \qquad (8)$$

This method exploits the fact that, if the instrument (Z_i) is strong, a violation of the exclusion restriction only causes a reduction in precision. This is true even if there are large deviations from the exclusion restriction. They develop a range of methods that combine information in the data with values of γ to provide valid inference regarding the key parameter of interest β. In Table 6, we report estimates of the effect of private schooling when we relax the assumption that the IV exclusion restriction holds exactly $(\gamma = 0)$. We adopt two approaches which are robust to our instrument directly affecting satisfaction with education. In the first case, reported in Panel A, we use the local-to-zero method that uses priors regarding the mean and variance-covariance matrix structure of γ to construct 95% confidence intervals for estimates of private schooling effects. In the second case, reported in Panel B, we use the Union of Confidence intervals approach where confidence regions for β are obtained conditional on any potential value of γ. Taking the union of these interval estimates across different γ values provides a conservative interval estimate for β.

Finally, a concern was the endogeneity of marks themselves which have been included as a control up to this point. The concern being that the causal direction

between school type and marks is unclear. We examine this by estimating equations (6) and (7) where the two instruments are availability and lagged marks, respectively, and using the resultant fitted values in the school satisfaction equation. The first panel of table 6 reports the first stage estimates of instrumental variable effects on private schooling and marks, respectively. Both of our instruments prove to be strong predictors and pass standard weak instrument tests. Statistically, prior marks appear to be a strong predictor of current marks (F-test = 11331.88) as, again, does availability of a private school in the area with respect to private school attendance (F-Test = 1533.299). Both are well beyond standard thresholds to detect weak instruments.

INSERT TABLE 7

The bottom panel reports the resultant student satisfaction estimates for the main education satisfaction question and each of the sub-domains. In all cases we report gross and net effects of private schooling. Marks remain positively related to student satisfaction in all models. IV estimates of gross effects remain similar to that reported earlier. Gross effects are typically not statistically different from zero, while net effects are broadly negative.[11] Attempting to deal with the potential endogeneity of marks does nothing to remove any satisfaction reducing aspect of private schooling.

V. CONCLUSIONS

Private provision of schooling remains one of the most contentious areas in education policy. This paper adds to this debate by sidestepping standard concerns over private vs public sector educational attainment and efficiency and instead examines students' relative subjective wellbeing across these two types of provision. This is motivated by evidence that adolescent satisfaction with school may be predictive of a range of behavior, such as risky behavior (Levy-Garboua, Loheac and Fayolle, 2006) and a concern that the focus on educational attainment may be, at some margin, a substitute for contemporaneous wellbeing. Specifically, we used a census of final year secondary students in three regions of Spain and compared education satisfaction across private and public school attendees.

[11] In unreported estimates we used our alternative instrument for school choice (competition) and both instruments together (competition and availability), the tenor of our results remained unchanged.

Whilst raw data, and naïve estimates, show a positive relationship between private schooling and student satisfaction, this does not survive the inclusion of controls for variation in school quality or attempts to address selection on unobservable characteristics. In fact, controlling for these factors leads to a negative conditional relationship between private schooling and student satisfaction. Examinations of sub-domains of satisfaction demonstrate that this is a remarkably stable pattern.

A key issue in the literature on private schooling is non-random selection into school type. We exploit the historical location of the private schools in our institutional setting as a source of variation in an instrumental variable setting. Our main results appear to be robust to this modeling strategy. As a result, we suggest that the improved educational performance that, arguably, comes with private schooling must be weighed against potential negative effects on student wellbeing.

References

Altonji, J.G., Elder., T.E., and Taber, C.R. (2005a). "Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools," *Journal of Political Economy*, 113(1), 151-184.

Altonji, J.G., Elder., T.E., and Taber, C.R. (2005b). "An Evaluation of Instrumental Variable Strategies for Estimating the Effects of Catholic Schooling," *Journal of Human Resources*, 40(4), 791-821.

Angrist, J. D., and Krueger, A.B. (1991). "Does compulsory school attendance affect schooling and earnings?" *The Quarterly Journal of Economics*, 106 (4), 979-1014.

Bandiera, O., Larcinese, V., and Rasul, I. (2009). "Heterogeneous Class Size Effects: New Evidence from a Panel of University Students," CEPR Discussion Papers 7512, C.E.P.R. Discussion Papers

Bentolila et al, (2012). "Two-tier labour markets in the great recession: France versus Spain," *Economic Journal*, 122: F155-F187.

Bernal, J.L. (2005). "Parental choice, social class and market forces: The consequences of privatization of public services in education," *Journal of Education Policy*, 20 (6), 779-792.

Card, D. (1995). Using Geographic Variation in College Proximity to Estimate the Return to Schooling. In L.N. Christofides, E.K. Grant, and R. Swidinsky, editors, Aspects of Labor Market Behaviour: Essays in Honour of John Vanderkamp. Toronto: University of Toronto Press.

Card, D. (1999). The causal effect of education on earnings in Orley Ashenfelter and David Card, editors, Handbook of Labor Economics Volume 3A. Amsterdam: Elservier.

Card, D., and Krueger, A.B. (1992). "Does School Quality Matter? Returns to Education and the Characteristics of Public Schools in the United States," *Journal of Political Economy*, 100 (1), 1-40.

Cohen-Zada, D. (2009). "An alternative instrument for private school competition," *Economics of Education Review*, 28, 29-37.

Cohen-Zada, D., and Elder, T. (2009). "Historical religious concentrations and the effects of Catholic schooling," *Journal of Urban Economics*, 66, 65-74.

Coleman, J.S., Hoffer, T. and Kilgore, S. (1982). High School Achievement: Public, Catholic, and Private Schools Compared (New York, NY: Basic Books).

Conley, Timothy G., Christian B. Hansen, and Peter E. Rossi. (2012) "Plausibly exogenous." *Review of Economics and Statistics* 94: 260-272.

Currie, J., and Thomas, D. (2001). "Early Test Scores, School Quality and Socioeconomic Status: Long Run Effects on Wage and Employment Outcomes," in Research in Labor Economics: Worker Wellbeing in a Changing Labor Market, v 20, 103-132.

Dearden, L., Ferri, J., and Meghir, C. (2002). "The Effect of School Quality on Educational Attainment and Wages," *Review of Economics and Statistics*, 84(1):1-20.

Elder, T., and Jepsen, C. (2013). "Are Catholic Primary Schools More Effective Than Public Primary Schools?" *Journal of Urban Economics*, forthcoming.

Evans, W. N., and Schwab, R.M. (1995). "Finishing High School and Starting College: Do Catholic Schools Make a Difference?" *Quarterly Journal of Economics*, 110(4), 941-974.

Figlio, D.N., and Ludwig, J. (2000). "Sex, Drugs, and Catholic Schools: Private Schooling and Non-Market Adolescent Behaviors," NBER Working Papers 7990.

Figlio, D.N., and Stone, J.A. (1997). "School Choice and Student Performance: Are Private Schools Really Better?" Institute for Research on Poverty Discussion Papers 1141-1197, University of Wisconsin Institute for Research on Poverty.

Gibbons, S., and Silva, O. (2011). "School quality, child wellbeing and parents' satisfaction," *Economics of Education Review*, 30, 312-331.

Thorsten Gruber, Stefan Fuß, Roediger Voss, Michaela Gläser-Zikuda, (2010) "Examining student satisfaction with higher education services: Using a new measurement tool", *International Journal of Public Sector Management*, 23 (2), 105 – 123.

Harmon, C., and Walker, I. (1995). "Estimates of the Economic Return to Schooling for the United Kingdom," *American Economic Review*, 85(5), 1278-1286.

Harmon, C., and Walker, I. (2000). "The Returns to the Quantity and Quality of Education: Evidence for Men in England and Wales," *Economica*, 67(265), 19-35.

Hoxby, C.M. (2003). The Economics of School Choice. University of Chicago Press, Chicago.

INE (2013). Household Expenditure on Education, Course 2011-2012. http://www.ine.es/jaxi/menu.do?type=pcaxis&path=%2Ft13%2Fp460&file=inebase&L=1 Date of Access: 18/09/2013

INE (2011). Estadística de Migraciones Interiores years 2010 to 2011.

Kim, Y.J. (2011). "Catholic Schools or School Quality? The Effects of Catholic Schools on Labor Market Outcomes," *Economics of Education Review*, 30(3), 546-558.

Levy-Garboua, L., Loheac, Y., and Fayolle, B. (2006). "Preference Formation, School Dissatisfaction and Risky Behavior of Adolescents," *Journal of Economic Psychology*, 27(1), 165-183.

Manski, C.F. (1992). "Educational Choice (Vouchers) and Social Mobility," *Economics of Education Review*, 11(4), 351-369.

Neal, D. (1997). "The Effects of Catholic Secondary Schooling on Educational Achievement," *Journal of Labor Economics*, 15(1), 98-123.

ONS (2011). Reference source: Office for National Statistics years Mid-2010 to Mid-2011. Internal Migration (NHSCR) Interregional movements, http://www.ons.gov.uk

Oreopolous, P., and Salvanes, K. (2011) "Priceless: The Nonpecuniary Benefits of Schooling", *Journal of Economics Perspectives*, 25(1), 159-184.

Schneider, A. (2010). "Redistributive taxation vs.education subsidies: Fostering equality and social mobility in an intergenerational model," *Economics of Education Review*, 29, 597-605.

Spanish Ministry of Education (MECD). 2004. Estadística de Enseñanzas no Universitarias - Resultados Detallados - Curso 2001-2002. URL: http://www.mecd.gob.es/servicios-al-ciudadano-mecd/estadisticas/educacion/no-universitaria/alumnado/matriculado/2001-2002.html

Teese, R., Aasen, P., Field, S., and Pont, B. (2006). Equity in Education. Thematic Review. Spain. Country note. Paris. OECD. *www.oecd.org/spain/36361409.pdf*

US Census Bureau (2012). Current Population Survey years 2011 to 2012, Current Population Survey, 2012 Annual Social and Economic Supplement. URL: http://www.census.gov/hhes/migration/data/cps/cps2012.html

Van Praag, B.M.S., and Ferrer-i-Carbonell, A. (2004). "*Happiness Quantified: A Satisfaction Calculus Approach."* Revised Edition. Oxford University Press, Oxford, UK.

Witte, J. F. (1992). "Private School Versus Public School Achievement: Are There Findings that should Affect the Educational Choice Debate," *Economics of Education Review*, 11(4), 371-394.

Toma, E., and Zimmer, R. (2012). Special Issue: Charter Schools, *Economics of Education Review*, 31 (2), 209-344.

Figure 1. Student Satisfaction by Type of School, 2002

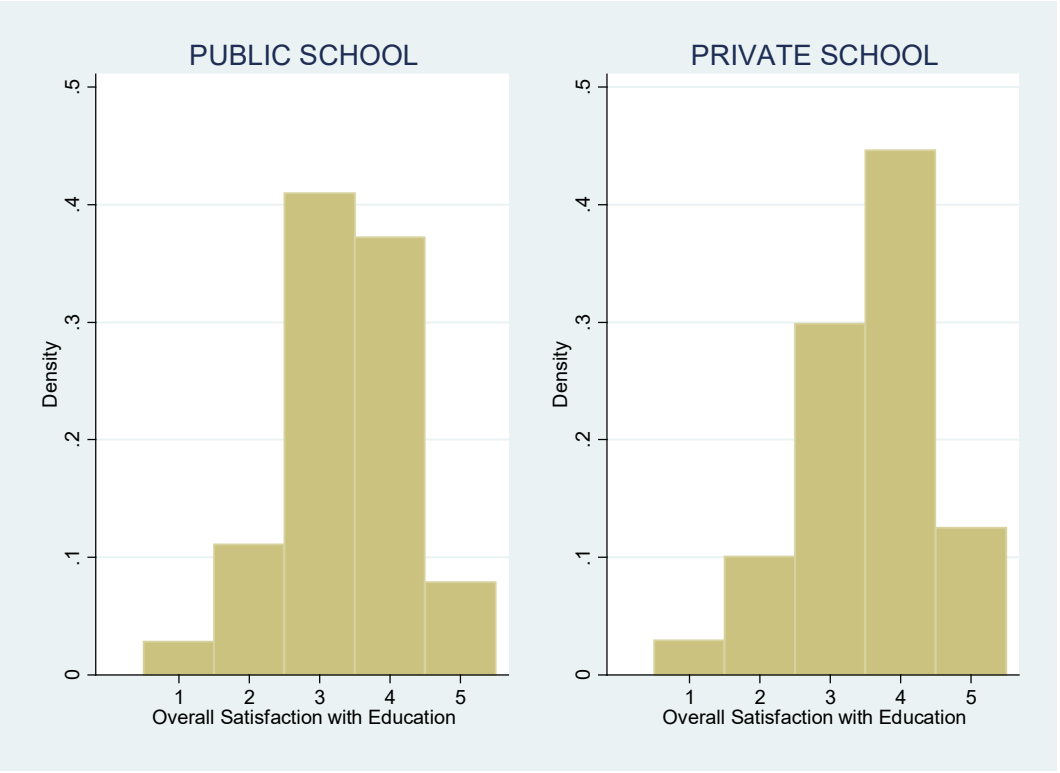

Table 1. Descriptive Statistics by Type of School

	Public School (10846)	Private School(3275)
Overall Satisfaction regarding/with Education received from the school	3.375	3.543
I am very satisfied with the learning I receive in this school (with teaching)	3.2595	3.480
Satisfaction with, and enjoyment of, the learning experience	3.106	3.306
It is nice to study at this school	3.223	3.338
I feel proud of my school	3.020	3.266
Marks A-D	76.258	85.361
markt0	59.381	78.085
< 1200 €	27.642	10.979
1200-1800 €	44.789	40.165
> 1800 €	27.569	48.856
Father Blue Collar	60.749	35.651
Father White Collar	39.251	64.349
Mother Blue Collar	80.407	63.282
Mother White Collar	19.593	36.719
Male	41.413	49.375
Female	58.587	50.625
17-18 years old	76.019	89.174
Older than 18	23.981	10.827
Aragon	26.741	45.105
Asturias	31.644	34.889
Extremadura	41.615	20.006
Not able to pass a univ.degree	9.502	5.368
Only able to pass	17.193	13.663
Able making greater effort	41.891	40.378
Able to get a good degree	31.414	40.592
Changed school this year	2.906	2.230
Changed school in the previous 2 years	8.351	11.408
No recent change	88.743	86.363
Only school in my municipality	13.375	0.153
Proximity	44.191	14.547
Family tradition	3.946	15.432
Prestige	8.803	33.913
Other reasons	29.685	35.956
Center Quality	4.422	4.836
Weekly < 5 hours	34.753	26.624
5-10 hours	35.139	33.638
> 15 hours	10.064	14.639

Table 2. Effect of School Choice on Student Satisfaction (POLS)

VARIABLES	(I)	(II)	(III) Gross Effect	(IV) Net Effect
Private School	0.190***	0.256***	0.086**	-0.119***
	[0.045]	[0.043]	[0.043]	[0.031]
Good Marks	0.282***	0.251***	0.181***	0.144***
	[0.024]	[0.022]	[0.023]	[0.020]
School Characteristics				0.561***
				[0.011]
Family Income 1200-1800 €		-0.055**	-0.061**	-0.030
		[0.026]	[0.025]	[0.021]
Family Income > 1800 €		-0.079**	-0.108***	-0.044*
		[0.031]	[0.030]	[0.025]
Father White Collar		-0.050**	-0.084***	-0.024
		[0.022]	[0.022]	[0.020]
Mother White Collar		-0.035	-0.057**	-0.032
		[0.025]	[0.025]	[0.023]
Male		-0.172***	-0.160***	-0.057***
		[0.020]	[0.019]	[0.016]
>18 years old		-0.169***	-0.119***	-0.073***
		[0.028]	[0.027]	[0.023]
Asturias		-0.109***	-0.083**	-0.029
		[0.037]	[0.035]	[0.025]
Extremadura		0.200***	0.155***	0.060**
		[0.044]	[0.041]	[0.029]
Able to pass			0.058	0.013
			[0.039]	[0.034]
Able increasing the effort			0.206***	0.077**
			[0.037]	[0.030]
Able			0.280***	0.149***
			[0.040]	[0.034]
First year in center			0.045	0.041
			[0.059]	[0.049]
2-5 years in center			-0.037	-0.027
			[0.023]	[0.019]
Reason: Only center			-0.139***	-0.124***
			[0.044]	[0.035]
Reason: Proximity			-0.057**	-0.028
			[0.026]	[0.022]
Reason: Tradition			-0.015	-0.005
			[0.040]	[0.034]
Reason: Prestigious			0.454***	0.271***
			[0.037]	[0.028]
Study 5-10 hourspw			0.066***	0.022
			[0.022]	[0.019]
Study 10-15 hourspw			0.119***	0.031
			[0.027]	[0.022]
Study + 15 hourspw			0.177***	0.097***
			[0.031]	[0.029]
Observations	14150	14150	14150	14150
R-squared	0.018	0.043	0.078	0.311

Note: Standard errors clustered at a school level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, the 5%, and the 1% levels, respectively.

Table 3. Effect of School Choice on Student Satisfaction (POLS). Different Satisfaction Domains.

VARIABLES	Specification 1	Specification 2	Specification 3	Specification 4
Overall Satisfaction regarding/with Education received from the school				
Private School	0.190***	0.256***	0.086**	-0.119***
	[0.045]	[0.043]	[0.043]	[0.031]
Good Marks	0.282***	0.251***	0.181***	0.144***
	[0.024]	[0.022]	[0.023]	[0.020]
Observations				
R-squared				
I am very satisfied with the learning I receive in this school (with teaching)				
Private School	0.244***	0.298***	0.133***	-0.063*
	[0.045]	[0.044]	[0.043]	[0.033]
Good Marks	0.229***	0.208***	0.145***	0.109***
	[0.024]	[0.022]	[0.022]	[0.020]
Observations	14150	14966	14966	14150
R-squared	0.017	0.034	0.066	0.271
Satisfaction with, and enjoyment of, the Learning Experience				
Private School	0.193***	0.242***	0.091**	-0.092***
	[0.043]	[0.044]	[0.046]	[0.033]
Good Marks	0.242***	0.219***	0.135***	0.105***
	[0.024]	[0.023]	[0.023]	[0.021]
Observations	14150	14966	14966	14150
R-squared	0.015	0.036	0.069	0.269
It is nice to study at this school				
Private School	0.097*	0.114**	-0.033	-0.227***
	[0.050]	[0.050]	[0.055]	[0.042]
Good Marks	0.196***	0.173***	0.117***	0.078***
	[0.027]	[0.026]	[0.026]	[0.024]
Observations	14150	14966	14966	14150
R-squared	0.006	0.018	0.038	0.241
I feel proud of my school				
Private School	0.237***	0.285***	0.067	-0.121***
	[0.053]	[0.051]	[0.050]	[0.037]
Good Marks	0.210***	0.181***	0.128***	0.095***
	[0.025]	[0.024]	[0.024]	[0.022]
Observations	14150	14966	14966	14150
R-squared	0.014	0.031	0.065	0.266

Note: All controls as per Table 2. Standard errors clustered at a school level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, the 5%, and the 1% levels, respectively.

Table 4. Magnitude of Selection on Unobservables to Selection on Observables Required to Assign the Whole Private School Effect to Selection Bias

	(1)	(2)	(3)	(4)	(5)	(6)
	$\hat{\beta}$	$Var(\varepsilon_i)$	$Var\left(\tilde{\text{Private}}_i\right)$	$\frac{Cov(X_i'\gamma, \text{Private}_i)}{Var(X_i'\gamma)}$	*Bias*	$\frac{\hat{\beta}}{Bias}$
Gross Effect	0.086	1.128	0.125	0.287	2.600	0.033
Net Effect	-0.119	0.842	0.121	0.140	0.970	-0.122

Column (1) corresponds to the OLS estimate of β from

$EDUCSAT_i = \alpha + \beta \text{Private}_i + X_i'\gamma + \varepsilon_i$.

Column (2) corresponds to $Var(\varepsilon_i)$ where ε_i is the residual from Equation (3 or 5) Private Schooling on Satisfaction.

Column (3) $Var\left(\tilde{\text{Private}}_i\right)$ where $\tilde{\text{Private}}_i$ is the residual from a regression of Private_i on X_i. $\text{Private}_i = X_i'\gamma + \tilde{\text{Private}}_i$

Column (4) $\frac{Cov(X_i'\gamma, \text{Private}_i)}{Var(X_i'\gamma)}$ comes from regressing individual's Private Schooling on $X_i'\hat{\gamma}$. Where consistent estimates of $\hat{\gamma}$ come from impossing in Equation (3 or 5) the null hypothesis $\beta = 0$ of no Private School effect on Satisfaction.

Column (5) corresponds to the bias under the assumption that $\frac{Cov(\text{Private}_i, \varepsilon_i)}{Var\left(\tilde{\text{Private}}_i\right)} = \frac{Var(\varepsilon_i)}{Var\left(\tilde{\text{Private}}_i\right)} \frac{Cov(\text{Private}_i, X_i'\gamma)}{Var(X_i'\gamma)}$ selection on unobservables equals selection on observables.

Column (6) presents estimates of the ratio of the OLS estimate in Column (1) and the estimated bias in column (5).

Table 5. Estimates of the Effect of Private Schooling on Student Satisfaction (IV)

First-Stage: Effect of availability on School Choice						
Availability	0.253***	0.251***			0.147***	0.142***
	(0.005)	(0.005)			(0.006)	(0.006)
Competition			0.062***	0.063***	0.046***	0.047***
			(0.002)	(0.002)	(0.002)	(0.002)
Partial R-Square	0.0958	0.0979	0.1210	0.1274	0.1451	0.1507
F-excl restr	2523.86	2382.59	1366.14	1377.39	1559.62	1500.38
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Second-Stage: Effect of Private Schooling on Student Satisfaction						
	IV1		IV2		IV3	
	Gross	Net	Gross	Net	Gross	Net
Overall Satisfaction regarding/with Education received from the school						
Private School	0.080	-0.064	-0.171**	-0.188***	-0.075	-0.143**
	[0.080]	[0.072]	[0.069]	[0.061]	[0.064]	[0.056]
Hansen					11.040	3.440
					0.0009	0.0636
I am very satisfied with the learning I receive in this school (with teaching)						
Private School	0.077	-0.047	-0.125*	-0.137**	-0.048	-0.104*
	[0.082]	[0.075]	[0.072]	[0.064]	[0.066]	[0.059]
Hansen					6.739	1.668
					0.0094	0.1965
Satisfaction with, and enjoyment of, the Learning Experience						
Private School	0.058	-0.055	-0.170**	-0.155**	-0.082	-0.118**
	[0.081]	[0.074]	[0.070]	[0.063]	[0.065]	[0.058]
Hansen					9.021	2.153
					0.0027	0.1423
It is nice to study at this school						
Private School	0.077	-0.057	-0.310***	-0.285***	-0.161**	-0.201***
	[0.087]	[0.080]	[0.076]	[0.069]	[0.070]	[0.064]
Hansen					22.326	9.446
					0.0000	0.0021
I feel proud of my school						
Private School	0.244***	0.096	-0.076	-0.060	0.047	-0.003
	[0.084]	[0.077]	[0.075]	[0.068]	[0.068]	[0.062]
Hansen					16.064	4.563
					0.0001	0.0327

Note: All controls as per Specifications 3 and 4 in Table 2. Standard errors clustered at a school level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, the 5%, and the 1% levels, respectively. IV1 corresponds to using availability of a private school in the area as exclusion restriction. IV2 corresponds to using the number of private schools per square mile as exclusion restriction. IV3 employs both availability of a private school in the area of residence and the number of schools per square mile as exclusion restrictions.

TABLE 6. Plausible Exogeneity and Private School Effects on Student Satisfaction

	Local to zero approximation			Union of Confidence Intervals	
	β	Lower bound	Upper bound	[Lower bound	Upper bound]
Gross effect	0.076	-0.078	0.231	-0.083	0.307
Net effect	-0.130	-0.268	0.008	-0.237	0.122

Table 7. Effect of School Choice on Student Satisfaction (POLS). Different Satisfaction Domains (IV). First-stage results comes from a bivariate probit.

	Gross effect	Net effect
Overall Satisfaction regarding/with Education received from the school		
Private School	0.026	-0.138***
	[0.056]	[0.050]
Good Marks	0.323***	0.239***
	[0.031]	[0.028]
Observations	14955	14137
R-squared	0.078	0.310
I am very satisfied with the learning I receive in this school (with teaching)		
Private School	0.044	-0.088*
	[0.057]	[0.051]
Good Marks	0.292***	0.209***
	[0.034]	[0.029]
Observations	14955	14137
R-squared	0.065	0.270
Satisfaction with, and enjoyment of, the Learning Experience		
Private School	0.069	-0.066
	[0.058]	[0.050]
Good Marks	0.263***	0.196***
	[0.033]	[0.030]
Observations	14955	14137
R-squared	0.070	0.269
It is nice to study at this school		
Private School	-0.050	-0.212***
	[0.062]	[0.054]
Good Marks	0.212***	0.129***
	[0.036]	[0.032]
Observations	14955	14137
R-squared	0.038	0.237
I feel proud of my school		
Private School	0.077	-0.077
	[0.059]	[0.053]
Good Marks	0.186***	0.111***
	[0.034]	[0.032]
Observations	14955	14137
R-squared	0.064	0.261

Note: All controls as per table 2. Standard errors clustered at a school level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, the 5%, and the 1% levels, respectively.