DOES SCHOOL OWNERSHIP MATTER? AN UNBIASED EFFICIENCY COMPARISON FOR SPAIN REGIONS

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"Does school ownership matter? An unbiased efficiency comparison for Spain regions"

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Abstract

PISA 2006 Report showed significant differences among Spanish students attending publicly financed schools. Publicly financed schools include entirely public schools and schools that are privately managed but publicly funded. Families with higher socio-economic status may self-select their children into government-dependent private schools, so a direct efficiency comparison between both school types could lead us to flawed conclusions because of the possible school selection bias. In this paper, we suggest using a quasi-experimental Propensity Score Matching approach in order to correctly analyze the impact of school ownership on students' achievements. After tackling the self-selection problem, we use a stochastic parametric distance functions framework to compare students' efficiency in both school types across ten Spanish regions using Programme for International Student Assessment 2006 data. Furthermore, we propose two original measures to analyze the impact of school ownership on academic performance across regions: the Average Treatment Effect on the Treated on the production frontier and the Average Treatment Effect on the Treated assuming school inefficiency. We find that, on average, government-dependent private schools are more efficient than public ones, although there are wide divergences on efficiency results by school type across regions.

Keywords: Education, Self-selection, Matching, Efficiency, Parametric Distance Function.

JEL codes: C14, H52, I21

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1. INTRODUCTION

One of the main goals in the field of the economics of education is to analyze the efficiency component in the learning processes. Technical inefficiency may be due to multiple factors, including the lack of motivation or effort in students and teachers, pedagogical issues, or the quality and experience of teachers. These factors may affect student's performance significantly and, therefore may indirectly influence educational efficiency. While several papers in the education literature have focused on the role of organizational structure on educational outcomes (*Nechyva* 2000; *Woessman* 2001), few papers have done so from an economic perspective.

Most of the previous educational literature attributes an advantage to government-dependent private schools (*GDPS)* over public schools (*PS*) in terms of educational outcomes based on the fact that market competition would force private schools to achieve a more efficient use of resources and to offer a higher standard of quality to their students (*Alchian* 1950; *Friedman and Friedman* 1981; *Chubb and Moe* 1990). The analysis of *PISA* 2006 may seem to confirm this finding because, on average, the academic performance of *GDPS* is higher than that of *PS* across different countries. However, in most of the educational systems, the distribution of students across publicly financed schools is not random, with a higher percentage of low income students attending *PS*. This implies that a simple mean comparison of the results would be flawed due to the selection of high-income students into *GDPS* and low-income students into *PS*.

Empirical studies that address this issue find no solid evidence regarding the superiority of either type of school. Some studies advocate for a private school advantage (*Witte* 1992; *Angrist et al.* 2002; *Krueger and Zhu* 2004; *Vandenberghe and Robin* 2004; *Duncan and Sandy* 2007). Other papers find no statistical differences between both types of schools (*Goldhaber* 1996; *McEwan* 2001; *Mancebón et al.* 2010); and even others conclude that public education is significantly better compared to that of privately managed schools (*Kirjavainen and Loikkanen* 1998; *Newhouse and Beegle* 2006).

This paper contributes to the above literature by proposing a new method to estimate the impact of school ownership on students' efficiency that is free from selection concerns and by applying it to measure efficiency of Spanish Schools. Spain is a particularly interesting case to study this issue. Publicly financed Spanish schools receive their core funding from the government agencies. Publicly financed schools can be classified as either entirely public schools (*PS*) or as government-dependent private schools (*GDPS*)[2]. The difference lies on whether a public entity or a private agency, respectively, has capacity to make decisions concerning its management. *PS* are monitored and managed by a public education authority or

[2] The so-called '*Escuela Concertada*' in Spanish

agency. *GDPS* are ruled by a non-public organization[3], which means that their governing board is not elected by a government agency. Private schools are classified as *GDPS* if they receive more than 50% of their core funding from government agencies[4].

Most Spanish families choose whether to attend a *PS* or a *GDPS* based on their location, their ideology and their expectations regarding what type of school offers the best quality of education for their children. Some people believe that teachers' quality is higher[5] in *PS* because teachers in these schools have passed a competitive exam to enter the public school system, which may lead to a better overall academic achievement. On the other hand, teachers in public schools are automatically granted tenure once they pass the entrance exam, which leads some people to argue that teachers in public schools do not have clear incentives to improve their methodologies and practices once they enter the system. Privately managed schools do not have this problem and therefore some people think that they might be more efficient and flexible than public schools. The different expectations regarding which school offers a better quality of education would only be a concern if they are not randomly distributed across families, which is not likely to be the case among a wide group families.

However, other factors are less likely to be random. In particular, a potentially important driving factor of the selection of students from low socio-economic status and/or students from large families into *PS* is that *GDPS* are allowed to charge a *voluntary monthly fee* (ranging from 30 € to 200 € per month and child) to parents under the claim that public funding is not enough to cover the total costs or to offer some extra-curricular activities. The fee is not mandatory which means that is up to the parents to decide whether to pay it. The selection comes from the fact that it is likely that certain grouup of families may not know that the fee is voluntary (for example some immigrant population) and may therefore perceive *GDPS* as more expensive, which leads them to send their children to *PS*. Hence, although similar students could be found in both types of schools, the variability of the student's background is likely to be wider for *PS*.

In this paper we propose an alternative methodology to measure educational efficiency that corrects the selection bias steaming from the school choice decision in Spain. The novelty of our approach lies in the use of a Propensity Score Matching (*PSM*) estimator within the

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[3] Most of these organizations include catholic schools, teachers' cooperatives, non for profit organizations or simply private enterprises.

[4] There also exist government-independent private schools, controlled by a non-government organization or with a governing board not selected by a government agency, which receive less than the 50% of their core funding from the government agencies. Although in this paper, we focus only on the publicly financed schools.

[5] The requirements for teaching in *PS* or *GDPS* are different. Hence, to pass a hard state exam is required in the first one, while a three years university degree for the second one.

framework of the stochastic frontier analysis. A similar approach[6] was implemented by *Mayen et al*. (2010) in order to compare the productivity and the efficiency between the organic and the conventional farms in Finland. To the best of our knowledge, however, the *PSM* and the stochastic frontier analysis have not been previously used jointly to assess school efficiency.

To carry out this task, we first use *PSM* to choose an unbiased sub-sample of schools in each of the ten Spanish regions with a representative sample in *PISA* 2006. We then estimate two stochastic parametric frontiers, one for each school type. The use of parametric distance functions presents some advantages for the estimation of educational production functions compared to other methods. Among these advantages is worth mentioning its higher flexibility, its stochastic character or the fact that allows us to calculate elasticities and to perform statistical inference. However, the efficiency measures may be biased if we do not correct for the problem of self-selection into *GDPS*. Although the use of *PSM* deals with the selection problem, the measurement of the impact of school ownership using only the *PSM* methodology does not correctly reflect the real difference in the students' achievements from both school types. Thus, we suggest combining both methodologies in order to obtain unbiased comparisons of students' efficiency. Moreover, we propose two original new concepts; the Average Treatment effect of the Treated on the Production Frontier (*ATTpf*) and the Average Treatment effect of the Treated assuming school inefficiency (*ATTasi*), which are more robust indicators of the impact of *GDPS* attendance in terms of technical efficiency.

The case of Spain is particularly relevant to study these issues due to the poor results that Spanish students achieved in *PISA* 2006 compared to other European countries [*Fuentes* 2009]. The bad overall performance of Spanish students has led to an intense political debate about which type of school is likely to produce better academic outcomes. In addition, education policies are greatly decentralized to the regions, which means that the regional governments decide the total amount of public funds allocated to education and its distribution. Moreover, there is a significant gap of almost twenty years among the regions whose decentralization process in education was in the early eighties -Andalusia, Basque Country, Catalonia, Galicia and Navarre- and those for which decentralization took place in the late nineties -Aragon, Asturias, Cantabria, Castile-Leon and La Rioja. The analysis of student's efficiency across regions allows also exploring the influence of the decentralization process on the managerial experience and to check the possible regional divergences on the impact of the school ownership on academic achievement and educational efficiency.

The analysis is performed using the student as the decision making unit. Many studies that measure educational efficiency aggregate the decision making units at the country (*Alfonso and St. Aubyn* 2006), the district (*McCarty and Yaisawarng* 1993; *Banker et al.* 2004) or the

[6] Another possible approach would be to combine stochastic frontier analysis and switching regression (*Greene* 2010).

school (*Muñiz* 2002) level. In this paper we prefer to use the student as the decision making unit because considering separately the student background and the scholar resources allows us to test the influence of school inputs on students' results (*Waldo* 2007).

The paper is organized as follows. Section 2 provides an overview of the distance function and the propensity score matching approaches and how our estimation strategy combines both of them. In Section 3, we describe the data set and the selected inputs and outputs from the Programme for International Student Assessment (*PISA*). Section 4 provides the results and a discussion of our empirical analysis. The final section summarizes the main conclusions.

2. EDUCATION AND EFFICIENCY ACROSS PUBLIC AND GOVERNMENT DEPENDENT PRIVATE SCHOOLS

2.1. *Estimating an educational production function through distance functions*

The educational production function represents how schools produce educational outputs in the form of student's achievement using their facilities and equipments, the teachers, the students' own characteristics, the peer-group interactions, the supervisors and the administrators. Following *Levin* (1974) and *Hanushek* (1979) this relationship can be defined as:

$$Y_{is} = f(B_{is}, S_{is}, P_{is}, I_{is}) \qquad (1)$$

where Y_{is} represents the achievement of student *i* at school *s*, usually measured by the results in standardized tests. This output vector depends on a set of factors that includes socioeconomic background (B_{is}), proxied by family characteristics; school inputs (S_{is}) (such as educational material, number of teachers or school's infrastructures); the influence of classmates or peer-group effect (P_{is}) and the students' innate abilities (I_{is}).

Other institutional factors may also influence the variation on students' results across schools. Some of these factors are, among others, the main pedagogical choices, the organizational structure, the incentive schemes or teachers' effort and motivation. All these variables are difficult to capture and are usually gathered into the efficiency component. Following *Perelman and Santín* (2011) we may estimate the educational multi-output and multi-input production frontier assuming inefficiency behaviors according to Equation (2):

$$D_{is} = g\ (Y_{is}, B_{is}, S_{is}, P_{is}) I_{is} \qquad (2)$$

where *g* represents the best practice technology used in the transformation of educational inputs into outputs and D_{is} is the distance that separates each student *i* attending school *s* from the technological boundary. The unobservable student innate abilities, I_{is}, are assumed to be randomly normally distributed among the population[7] of students and to influence the individual performance in a multiplicative way. From Equation (2) we may, first, identify the divergences in performance and efficiency attributed to students and, second, test the statistical importance of the main educational factors and the impact on students' attainment. For the empirical analysis, we propose a parametric distance function, which has been previously used in other studies such as *Grosskopf et al*. (1997) or *Coelli and Perelman* (1999, 2000).

A flexible *translog*[8] functional form is assumed to estimate the output oriented parametric distance function. Equation (3) shows the specification[9] for the case of *M* outputs and *K* inputs:

$$\ln D_{oi}(x,y) = \alpha_0 + \sum_{m=1}^{M} \alpha_m \ln y_{mi} + \frac{1}{2}\sum_{m=1}^{M}\sum_{n=1}^{M} \alpha_{mn} \ln y_{mi} \ln y_{ni} + \sum_{k=1}^{K} \beta_k \ln x_{ki} +$$
$$\frac{1}{2}\sum_{k=1}^{K}\sum_{l=1}^{K} \beta_{kl} \ln x_{ki} \ln x_{li} + \sum_{k=1}^{K}\sum_{m=1}^{M} \gamma_{km} \ln x_{ki} \ln y_{mi} \qquad (i = 1,2,...,N) \tag{3}$$

where $x = (x_1, \ldots, x_K) \in \Re^{K+}$ and $y = (y_1, \ldots, y_M) \in \Re^{M+}$ are the educational input and output vectors, respectively, and sub-index *i* denotes the *ith* decision making unit in the sample. In order to obtain the frontier surface, we set $D_o(x,y) = 1$, which implies that $\ln D_o(x,y) = 0$.

Following *Lovell et al*. (1994), normalizing the output distance function by one output is equivalent to imposing homogeneity of degree +1. Then, by rearranging terms, the expression of the traditional stochastic frontier model can be expressed through Equation (4):

$$-\ln(y_{Mi}) = TL(x_i, y_i / y_{Mi}, \alpha, \beta, \gamma) + \varepsilon_i \quad (\varepsilon_i = u_i + v_i) \tag{4}$$

where *TL*(•) denotes the *translog* functional form. The non-negative inefficiency random variable $u = -\ln D_{oi}(x,y)$ has a half-normal distribution $|N(0,\sigma_u^2)|$ and is independently distributed from

[7] The scoring of modern IQ tests, such as the Wechsler Adult Intelligence Scale (*Wechsler* 2008), the primary clinical instrument used to measure adult and adolescent intelligence, is now based on a projection of the subject's measured rank on the normal distribution with a center value (average IQ) of 100, and a standard deviation of 15, although not all IQ tests adhere to this standard deviation.

[8] The Cobb Douglas form does not satisfy the concave imposition in the output dimension.

[9] Distance function parameters must satisfy some restrictions as symmetry and homogeneity of degree +1 for outputs, which implies that the distance of the decision making unit to the boundary of the production set is measured by radial expansions.

the random noise term, v_i, which is independently and identically distributed as a normal distribution $N(0,\sigma_v^2)$.

The simple maximum likelihood estimation of Equation (4), by adding a dummy variable to identify differences in performance by school type may yield biased results given selection concerns, especially for the Spanish case. Preferences apart, students admission into *PS* or *GDPS* is based on a point system that is subject to different legal criteria across different regions. The main factors considered in the point system are household income, family size (three or more siblings), the closeness of the school to the student's residence and the number of siblings already attending the school. In addition, as mentioned in the introduction, low socio-economic families self-select themselves into *PS* because they cannot afford some of the voluntary extra-payments that are charged by most *GDPS*.

The ideal measurement of the true impact of the school ownership attendance on students' achievement would require observing the performance of the same student in both, *PS* and *GDPS*. However, it is only possible to observe the student's attainment in one school. To overcome this problem, a counterfactual[10] of each *GDPS* student (treated) must be sought among *PS* students (non-treated) through a 'quasi-experimental' evaluation technique.

As we mentioned in the introduction, a wide group of medium income families have a similar motivation to maximize the quality of their children' education, but they finally attend *PS* or *GDPS* for different reasons such as religious beliefs, ideology, the expected quality of teachers, the management flexibility, etc. Nevertheless, we observe a higher proportion of low socio-economic students in *PS,* who have not counterfactual in *GDPS*. Thus, we propose the use of the *PSM* technique in order to achieve a better comparison.

2.2. *The Propensity Score Matching*

The aim of *PSM* is to find a counterfactual, within a large group of non-treated students, closer to students in the treated group, conditioning on a set of observable variables, *Z,* that solve the selection bias[11] (*Rosembaum and Rubin* 1983; *Heckman and Navarro–Lozano* 2004). In order to implement it, we first estimate the probability of attending *GDPS* (propensity score) for each student through a logit analysis.

[10] A student attending a *PS* is counterfactual of a student from *GDPS* if both students have similar personal and family characteristics and, have a very similar *a priori* probability of attending *GDPS*.

[11] We do think that in the Spanish educational context there are not other unobservable characteristics influencing the school choice and results.

$$p(S_i) = \frac{\exp^{Z_i \cdot \gamma}}{1+\exp^{Z_i \cdot \gamma}} + \xi \qquad (5)$$

where S_i equals one if the student attends *GDPS* and zero otherwise, *p*(S_i) is the estimated probability of attending *GDPS*, Z_i is a set of observable characteristics that determines the school choice, γ is a set of parameters that must be estimated and ξ is the error term. Secondly, we use the previous estimated probabilities to obtain matched pairs of treated students and their counterfactual. Then, from the matched subsample, the average impact of school ownership attendance is calculated through the Average Treatment effect on the Treated (*ATT*) as the difference of the average student's performance between both, *GDPS* and *PS*, controlling by the school choice variables as Equation (6) shows:

$$\tau_{ATT} = E\{E[Y_i\ (1)|S_i = 1, p(S_i)] - E[Y_i\ (0)|S_i = 0, p(S_i)]|S_i = 1\} \qquad (6)$$

where $Y_i(1)$ and $Y_i(0)$ are the average achievements in both, *GDPS* and *PS,* respectively, supposing the two counterfactual situations of treatment (attending *GDPS*) and no treatment (attending *PS*). $P(S_i)$ is the probability of attending *GDPS* for the student *i,* conditioned to Z_i.

In order to achieve a proper implementation of the matching strategy, some properties are imposed, such as the *unconfoundedness*[12], which guarantees the independence between the outcome and the treatment effect, given *Z*, or *common support*, that forces the comparison only among very close individuals, given *Z.*[13]. For empirical purposes, the estimation problem due to a high dimensional vector *Z*, was solved by Rosenbaum and Rubin (1983) who demonstrated that matching may be performed conditioning on the propensity score *p(S),* instead of conditioning on the *Z* vector. Then, if the outcome is independent of the treatment received for a given set *Z*, it is also independent for a given *p(S).* Finally, both groups, treated and non-treated, must have the same distribution of observable and unobservable characteristics, which means that only very close individuals are compared.

2.3. Our strategy

We propose a new framework to analyze efficiency in education. Two alternative approaches are combined in order to achieve unbiased students' efficiency comparisons between different school types. Firstly, the *PSM* approach is implemented to obtain unbiased

[12] The unconfoundedness or Conditional Independence Assumption (CIA) implies: $Y(0), Y(1)\ II\ S \mid Z, \forall Z$.

[13] An extensive review about this issue may be found in *Caliendo and Kopeing* (2005).

subsamples of treated and non-treated students for each Spanish region with representative sample in *PISA* 2006. Then, two production frontiers at the student level, one for each school type[14] and region, are estimated through the parametric distance function approach. Moreover, three measures are built with the aim of achieving the impact of the school ownership on the student's results.

Thus, our proposal consists of a three stage procedure. In a first step, we estimate the *ATT* that reflects the academic performance gap between both school types focusing only on the *GDPS* self selection. Secondly, we add other relevant educational factors involved in the learning process to the last measure in order to reflect differences in achievements between schools. We name it Average Treatment effect on Treated on the production frontier *(ATTpf).* Finally, with the aim of analyzing school inefficiency disparities, the third measure, Average Treatment effect on Treated assuming school inefficiency (*ATTasi)* is built from the main inputs information and the average school inefficiency.

Equation (7) reflects the *ATT* for each regional sample and discipline, using the nearest neighbor estimator[15] -the closest individual in the control group- to obtain the matched pairs:

$$ATT_D^R = E\left\{E[Y_i^R(1)\middle|S_i = 1, p(S_i^R)] - E[Y_i^R(0)\middle|S_i = 0, p(S_i^R)]\middle|S_i = 1\right\} \quad (7)$$

where sub-index *D* indicates the corresponding output (test score in *PISA*) and upper-index *R* corresponds to each region.

In a second step, we estimate two stochastic production frontiers, one for each regional matched-sample. We are assuming different technologies for each region and school type because educational policies are decentralized to this level, so the organization structure and the economic resources devoted to each school type are not necessary the same among different regions[16]. This procedure allows us to obtain a new measure, the Average Treatment effect on the Treated on the Production Frontier (*ATTpf*), as the difference of the average predicted output in the production frontier between both *GDPS* and *PS* by discipline and region.

[14] We assume different technologies, so the management drivers differ in both school types, while *GDPS* teachers are hired and fired by school principals and present a more flexible management, *PS* teachers need to pass a high difficult state exam and they cannot be fired. Our argument is confirmed later on Table 9 where inputs parameters are in general significantly different for *GDPS* and *PS* estimations.

[15] There exist several approaches to obtain the matches, although the analysis of these alternatives excesses the aim of this paper. For more insight on this topic see *Heckman et al*. (1997).

[16] Some divergences in the students' results can be explained by the regional context due to factors as the local economic development, the employment possibilities, the immigrant population, the rural areas extensions, the socioeconomic background of the population or the differences among their educational policies.

$$ATT_{pf}^{R} = E\left[\hat{y}_{i,G}^{R}\right] - E\left[\hat{y}_{i,P}^{R}\right] \quad (8)$$

where sub-index *G (P)* refers to students attending *GDPS* (*PS*) and $\hat{y}_i^R$ is the average educational output vector for each production frontier and region. This measure captures the disparities in students' results between both school types, after considering all relevant inputs[17] involved in the learning process and assuming that students are fully efficient[18]. The computation of this measure starts by carrying out a radial projection of each student to its estimated production frontier. We then average the predicted performance for all students belonging to the same school type on their frontier. This measure allows selecting a group of students with relevant characteristics and only obtaining the *ATTpf* for this cluster of students[19].

Finally, in order to take into account the mean efficiency divergences among schools across disciplines and regions, we define the Average Treatment effect on the Treated assuming school inefficiency (*ATTasi)* as follows:

$$ATT_{asi}^{R} = \left\{E\left[\hat{y}_{i,G}^{R}\right]\cdot \bar{u}_{G}^{R}\right\} - \left\{\left[\hat{y}_{i,P}^{R}\right]\cdot \bar{u}_{P}^{R}\right\} \quad (9)$$

where $\bar{u}_G^R$ and $\bar{u}_P^R$ are the average estimated students' inefficiencies in both *GDPS* and *PS* in each region, respectively. Equation (9) represents the difference in achievements between *GDPS* and *PS*, controlling by *GDPS* self-selection and incorporating the main educational factors and the average school inefficiency for each school type.

Fig. 1 illustrates these three measures in a simple two-output one equal input setting, where *GDPS* (*PS*) represents the *government-dependent private school* (*public school*) production frontier. Let assume that *A* and *B* are two different students, the treated and his/her counterfactual (non-treated) attending *GDPS* and *PS*, respectively. The difference between the two outputs produced by students *A* and *B* corresponds with the *ATT* for outputs y_1 and y_2. Then, after considering the educational inputs, outputs and other factors that are involved in the educational production process, we may estimate the production frontiers for *GDPS* and *PS* as well as the technical efficiency for each student. The next step is to project both students, *A* and *B*, to their respective production frontiers (*C* and *D*), being the difference between the two outputs in dots *C* and *D* the *ATTpf* measure for outputs y_1 and y_2. Finally, by allowing for

[17] Note that only school choice variables were considered for the *ATT* measurement.

[18] To do this we perform a radial projection of all students to the estimated production frontier.

[19] Thus, our methodology can provide a wide range of *ATTpf* and *ATTasi* measurements according to different students' typologies.

different average students' inefficiencies in both school types, the *ATTasi* is obtained as the difference between the outputs obtained in dots *E* and *F* for outputs y_1 and y_2.

Figure 1: ATT, ATTpf and ATTasi measures

Source: Own compilation

3. ANALISYS OF SPANISH EDUCATION IN *PISA* 2006

3.1. Data

In our empirical analysis, we use Spanish data from *PISA* 2006 Report which provides data from 15 years old students attending schools in one of the ten regions that decided to take part in the evaluation with an extended representative sample of their population (Andalusia, Aragon, Asturias, Basque Country Cantabria, Castile-Leon, Catalonia, Galicia, Navarre and La Rioja). The methodology described in section 2.2. is carried out for each region separately. It is worth noting again here that the Spanish regions are fully responsible for the management of educational resources. Therefore, this analysis is also worth for comparison purposes and as a source of information for more efficient educational policies and in order to guarantee equality of educational opportunities. The sample includes data from 15,918 students and 564 schools distributed across ten regions as shown in Table 1.

Table 1: Distribution of students by school ownership and region

Region	*Students*	*Number of PS*	*Number of GDPS*
Andalusia	1,419	37	13
Aragon	1,376	31	16
Asturias	1,318	31	14
Cantabria	1,385	31	19
Castile-Leon	1,369	31	17
Catalonia	1,149	29	11
Galicia	1,381	36	11
Navarre	1,489	22	20
Rioja	1,240	30	19
Basque Country	3,797	63	83
TOTAL	**15,923**	**341**	**223**

Source: *Own compilation from PISA 2006 database.*

3.2. Variables

Control variables for the PSM analysis

The first step of our estimation procedure involves obtaining matched pairs of students through the *PSM* analysis[20]. In this stage, *School* is the dependent variable that reflects the treatment[21] and the set of covariates includes variables that are directly correlated with the parents' school ownership choice (*Pared, Hisei, Immigrant* and *City*).

Pared and *Hisei* represent the index scores for the highest educational[22] and occupational[23] level of parents, respectively. *Pared* is measured as estimated years of schooling and *Hisei* reflects the highest occupational status of either of the parents. Our hypothesis is that the probability of attending *GDPS* increases with *Pared* and *Hisei*.

Immigrant status. This factor has received increasing attention in the literature in recent years (*Witte* 1998; *Gang and Zimmermann* 2000; *Entorf and Minoiu* 2005; *Cortes* 2006; *Schnepf* 2008). In the case of Spain this is an especially relevant covariate due to the growth of

[20] As a consequence of imposing balancing property to ensure that only students with the same probability of attending *GDPS* are matched, the total sample size reduces from 15,918 to 15,123 students.

[21] *PSM* is generally calculated using *Pared, Immigrant* and *City* as control variables, with the exception of Basque Country and Castile-Leon where *Hisei* is used instead of *Pared* to impose the balancing property.

[22] Parental education (*Pared*) is classified using *ISCED* (*OECD*, 2000). Indices on parental education are constructed by recoding educational qualifications into the following categories: (0) None; (1) *ISCED* 1 (primary education); (2) *ISCED* 2 (lower secondary); (3) *ISCED* Level 3B or 3C (vocational/pre-vocational upper secondary); (4) *ISCED* 3A (upper secondary) and/or *ISCED* 4 (non-tertiary post-secondary); (5) *ISCED* 5B (vocational tertiary); and (6) *ISCED* 5A, 6 (theoretically oriented tertiary and post-graduate).

[23] *Hisei* is the higher level labor occupation of any of the student's parents according to the International Socio-Economic Index of Occupational Status (ISEI). For more details see *Ganzeboom et al*., (1992).

the immigrant population at school age during the last decade[24]. Several studies have recently analyzed the influence of this factor on the academic achievement of Spanish students using *PISA* data (*Chiswick and DebBurman* 2004; *Calero and Escardibul* 2007; *Zinovyeva et al.* 2008; *Calero and Waisgrais* 2009; *Mancebón et al*. 2010). A control for immigration status is included in both the *PSM* and the efficiency analysis through three different dummy variables. The one included in the *PSM* analysis is *Inmigrant* and takes value one when the student and/or his/her parents was/were born abroad and zero otherwise. Our hypothesis is that the probability of attending *GDPS* decreases when the student is an immigrant.

The community size is captured by the variable *City,* which takes value one if the community is a city of more than 100,000 inhabitants and zero if the school is located in a town, small town or village[25]. Following *Vandenberghe and Robin* (2004), who showed positive influence of household location on school choices, we consider it as a control variable for the *PSM* analysis (*McEwan* 2001; *Sander* 2001; *Perelman and Santín* 2011).

The dependent variable in the *PSM* analysis*, School* takes value one when the student attends *GDPS* and zero for *PS* attendance. As we remarked in the introduction of the paper, according to the literature, the expected influence of this variable on students' achievements is not clear.

Inputs for the parametric distance function approach

We use five different inputs for the distance function estimation described in Equation (3) (*Scmatedu, Escs, Peer, Pcgirls and Stratio*)[26] jointly with six control factors (*Repone, Repmore Schsize, Firstgen, Secgen and Gender*) that do not interact with other variables in the *translog* production function. All of them are directly involved in the student learning process and are expected to have a positive influence on students' performance. Including the control variables in the educational production function allows us to analyze their impact over academic results.

[24] According to Spanish official educational statistics captured by MEC (2008), foreign students in non-university education have grown from a total number of 72,335 in 1998 to 695,190 in 2008.

[25] The population size for a village, hamlet or rural area is fewer than 3, 000 people; 3, 000 to about 15, 000 people in a small town; 15,000 to about 100, 000 people in a town; 100, 000 to about 1,000, 000 people in a city and for a large city with or over 1,000, 000 people.

[26] We have considered that all the inputs variables are continuous and show significant positive correlations inside each school type and across all the regions. The remaining control variables are categorical variables (dummies) or do not fulfill in our database a clear significant positive correlation with output (*schsize*).

Scmatedu[27] represents the quality of the school resources. This variable is an index derived from school principals' responses to seven items related to the availability of educational resources such as computer for didactic uses, educational software, calculators, books, audiovisual resources, and laboratory equipment. Previous research is inconclusive regarding the role of school resources on academic performance. While some studies show a positive influence (*Carroll* 1963; *Krueger* 1999), others find that there is no direct correlation between more school inputs and better academic outcomes (*Hanushek* 1986, 1997, 2003; *Cordero et al.* 2010a, 2010b).

Escs reflects the s*ocio-economic background* of each student. It is an index of student's economic, social and cultural status created by *PISA* analysts from three variables related to family background. The first variable is the index of highest level of parental education in number of years of education according to the *International Standard Classification of Education ISCED*, *OECD* 1999). The second variable is the index of highest parental occupation status according to International Socio-economic index of Occupational Status (*ISEI*, *Ganzeboom et al*. 1992). The third variable is the index of educational possessions at home.

Peer incorporates information about the characteristics of students' classmates[28]. This variable is defined as the average of the *Escs* variable of students that share the same school as the evaluated one.

Pcgirls is an index of the proportion of girls at school that is based on the enrolment data provided by the schools' principals. It is computed by dividing the number of girls by the total number of students at the school. We introduce this variable in order to test if higher proportions of girls imply better academic results as it was found for Spain by *Calero and Escardibul* 2007; *Calero et al*. 2009 and *Salinas and Santín* 2012.

Classroom size (*Stratio*) is the teacher-student ratio. It is measured as the number of full-time equivalent teachers per a hundred of students. In the calculation of full-time equivalent teachers, part-time teachers contribute 0.5. This variable is usually considered as a school input in the educational efficiency analysis due to some studies that find a direct relationship between reduced class size, more labor resources devoted to education, and higher academic performance (*Card and Krueger* 1992; *Hoxby* 2000; *Krueger* 2003; *Mora et al.* 2010).

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[27] Since positive and negative values can be found in the original variable, we have re-scaled all the values in order to have only positive values for the input variables.

[28] For a more detail review about the effect of these variables on students' results see *Betts and Shkolnik* (2000) or *Hanushek et al.* (2001).

Repeat once (Repone) and *Repeat more (Repmore)* are two dummy variables that capture whether or not students have repeated one or more than one school year, respectively. This phenomenon is quite important in the case of Spain, where the repetition rate is much higher than in other countries from the *OECD*[29] (*Fuentes* 2009). Again, the effect of this variable on educational results is not clear. A few previous papers find a certain positive correlation (*Pierson and Connell* 1992; *Roederick et al.* 2002) between repetition rates and academic performance, but the majority of previous studies conclude that repetition leads to a reduction of academic performance and to a considerable increase in the probability of students' dropping out (*Holmes and Mathews* 1984; *Shepard et al.* 1996; *Alexander et al.* 2003).

School size (*Schsize*) indicates the total number of students in the school. The influence of this variable in the educational process has also been tested in previous studies. Some papers support that schools with more students have better results (*Bradley and Taylor* 1998; Barnett *et al.* 2002) while others find no influence of size on students' results (*Hanushek and Luque* 2003), and even others that lower school sizes reduce the dropout rate and the proportion of early school-leaving (*Mora et al.* 2010).

Firstgen indicates the immigrant origin. This variable takes value one when the student and at least one of his/her parents were born abroad. Similarly, *Secgen* denotes a student that was born in Spain but at least one of his/her parents was born abroad, which allows us to identify the first and second generation immigrants.

Gender takes value one for girls and zero for boys. Several studies, such as *Calero and Escardibul* (2007) and *Mancebón et al.* (2010) in Spain, find a better performance on reading for girls, but just the opposite on mathematics and science, where boys achieve higher results from *PISA* 2006.

Tables 2-3 report the average inputs for *PS* and *GDPS* in each region. These figures show that, as we expected, students who attend *GDPS* present a higher socioeconomic background. Likewise the student-teacher ratio and the school size is always lower in *PS*, while the proportion of immigrant and repeater students or the quality of the scholar resources is usually higher, with the exception of Andalusia and Aragon, being the only regions where both, repeating several years and the quality of school resources, are higher for *GDPS,* respectively. As *GDPS* are privately managed they try to minimize all their costs which implies optimizing educational resources and maximizing the class sizes because more students imply more voluntary-fee incomes. Finally, it is worth mentioning these input differences among both school types are not so wide in Catalonia.

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[29] More than 40% of Spanish students have repeated a course almost once in 2006 (source *PISA* 2006).

Table 2: Descriptive statistics of matching GDPS schools inputs sample

Region	Obs	*Variable*	*Pared*	*Hisei*	*Immigrant*	*City*	*Scmatedu*	*Escs*	*Peer*	*Pcgirls*	*Repone*	*Repmore*	*Stratio*	*Schsize*	*Primgen*	*Secgen*	*Gender*
Andalusia		Mean	11.303	47.950	0.003	0.470	2.071	5.872	5.869	0.498	0.229	0.119	19.468	841.507	0.000	0.003	0.521
	353	Std. Dev.	4.251	18.402	0.053	0.500	0.514	1.129	0.585	0.047	0.421	0.324	2.018	483.617	0.000	0.053	0.500
Aragon		Mean	12.402	49.975	0.022	0.729	2.583	6.154	6.153	0.493	0.195	0.042	17.017	855.987	0.018	0.004	0.499
	451	Std. Dev.	3.654	17.004	0.147	0.445	0.993	0.976	0.468	0.095	0.397	0.201	2.266	557.589	0.132	0.067	0.501
Asturias		Mean	12.492	47.258	0.016	0.428	2.218	6.055	6.051	0.498	0.238	0.056	16.081	751.029	0.013	0.003	0.513
	374	Std. Dev.	3.410	17.025	0.126	0.495	0.889	0.951	0.453	0.051	0.426	0.231	2.693	501.586	0.115	0.052	0.500
Cantabria		Mean	12.419	46.103	0.037	0.434	2.078	6.072	6.071	0.497	0.239	0.041	17.163	704.213	0.035	0.002	0.509
	489	Std. Dev.	3.460	17.123	0.188	0.496	0.753	0.994	0.525	0.064	0.427	0.198	2.838	302.689	0.183	0.045	0.500
Castile		Mean	12.540	45.248	0.026	0.373	2.305	6.154	6.155	0.498	0.247	0.050	16.251	701.421	0.026	0.000	0.507
Leon	458	Std. Dev.	3.551	17.286	0.160	0.484	0.944	0.972	0.438	0.094	0.432	0.219	2.211	431.144	0.160	0.000	0.501
Catalonia		Mean	11.642	46.597	0.064	0.631	2.398	5.885	5.872	0.480	0.192	0.015	15.856	754.527	0.052	0.012	0.512
	328	Std. Dev.	3.555	15.368	0.245	0.483	0.925	0.906	0.297	0.043	0.395	0.123	1.374	295.677	0.222	0.110	0.501
Galicia		Mean	12.152	49.863	0.024	0.409	1.935	6.131	6.133	0.462	0.193	0.078	15.554	609.689	0.003	0.020	0.453
	296	Std. Dev.	3.702	16.843	0.152	0.492	0.703	1.018	0.600	0.056	0.395	0.268	1.971	311.797	0.058	0.141	0.499
Navarre		Mean	13.221	52.487	0.046	0.636	1.946	6.306	6.295	0.481	0.152	0.033	13.843	893.970	0.041	0.005	0.494
	605	Std. Dev.	3.387	18.144	0.210	0.481	0.630	0.980	0.541	0.128	0.359	0.179	3.521	472.156	0.199	0.070	0.500
Rioja		Mean	12.633	50.973	0.032	0.659	2.237	6.261	6.257	0.462	0.188	0.032	17.188	638.915	0.032	0.000	0.458
	563	Std. Dev.	3.501	17.456	0.176	0.474	0.848	0.987	0.432	0.151	0.391	0.176	2.288	404.291	0.176	0.000	0.499
Basque		Mean	13.024	49.991	0.016	0.432	2.721	6.187	6.186	0.466	0.141	0.019	15.348	1016.255	0.015	0.001	0.495
Country	2,255	Std. Dev.	3.368	17.252	0.124	0.496	0.762	0.955	0.499	0.092	0.349	0.135	2.949	534.189	0.120	0.030	0.500
TOTAL	**6,172**	***Mean***	**12.383**	**48.559**	**0.029**	**0.520**	**2.249**	**6.108**	**6.104**	**0.484**	**0.201**	**0.048**	**16.377**	**776.751**	**0.024**	**0.005**	**0.496**
		Std. Dev.	**3.584**	**13.749**	**0.158**	**0.485**	**0.796**	**0.987**	**0.484**	**0.082**	**0.399**	**0.205**	**2.413**	**429.473**	**0.137**	**0.057**	**0.500**

Source: Own compilation from PISA 2006

Table 3: Descriptive statistics of matching PS inputs sample

Region	Obs	*Variable*	*Pared*	*Hisei*	*Immigrant*	*City*	*Scmatedu*	*Escs*	*Peer*	*Pcgirls*	*Repone*	*Repmore*	*Stratio*	*Schsize*	*Primgen*	*Secgen*	*Gender*
Andalusia		Mean	9.475	40.163	0.005	0.292	3.887	5.337	5.346	0.503	0.355	0.082	11.241	633.413	0.002	0.003	0.527
	1,039	Std. Dev.	4.135	14.561	0.069	0.455	1.082	0.983	0.414	0.043	0.479	0.274	1.477	271.540	0.044	0.054	0.499
Aragon		Mean	11.439	44.202	0.081	0.487	2.439	5.771	5.774	0.516	0.341	0.078	9.520	613.748	0.076	0.005	0.491
	924	Std. Dev.	3.849	16.638	0.273	0.500	0.773	0.999	0.380	0.065	0.474	0.268	1.756	305.886	0.265	0.073	0.500
Asturias		Mean	11.711	42.807	0.026	0.359	3.357	5.744	5.738	0.511	0.273	0.057	7.906	576.977	0.021	0.004	0.490
	941	Std. Dev.	3.528	15.864	0.158	0.480	1.005	0.952	0.338	0.067	0.446	0.233	1.012	217.041	0.144	0.065	0.500
Cantabria		Mean	11.575	43.058	0.031	0.195	2.386	5.780	5.776	0.509	0.328	0.069	8.145	548.079	0.030	0.001	0.500
	894	Std. Dev.	3.477	15.953	0.174	0.396	0.756	0.905	0.280	0.082	0.470	0.254	1.318	205.174	0.171	0.033	0.500
Castile		Mean	11.444	41.792	0.029	0.305	3.067	5.693	5.679	0.493	0.323	0.060	9.415	668.203	0.028	0.001	0.460
Leon	902	Std. Dev.	3.736	16.108	0.167	0.461	0.935	0.968	0.357	0.064	0.468	0.237	1.942	336.914	0.164	0.033	0.499
Catalonia		Mean	11.040	43.231	0.079	0.326	2.832	5.664	5.627	0.487	0.287	0.035	9.556	505.611	0.070	0.009	0.516
	773	Std. Dev.	4.045	15.676	0.270	0.469	1.051	0.962	0.336	0.044	0.453	0.184	1.001	141.844	0.255	0.095	0.500
Galicia		Mean	10.671	40.505	0.023	0.161	2.708	5.506	5.504	0.502	0.318	0.115	8.197	459.602	0.018	0.006	0.484
	1,084	Std. Dev.	3.765	14.736	0.150	0.368	0.982	0.964	0.417	0.088	0.466	0.320	1.637	192.966	0.131	0.074	0.500
Navarre		Mean	11.407	42.516	0.072	0.275	2.800	5.691	5.679	0.511	0.260	0.040	8.477	547.716	0.068	0.003	0.520
	877	Std. Dev.	3.752	15.697	0.258	0.447	1.003	0.932	0.312	0.047	0.439	0.196	1.312	307.386	0.253	0.058	0.500
Rioja		Mean	11.180	42.498	0.074	0.377	2.446	5.716	5.713	0.496	0.337	0.058	9.353	592.794	0.068	0.006	0.528
	676	Std. Dev.	3.708	15.153	0.262	0.485	0.858	0.922	0.282	0.070	0.473	0.233	1.578	306.517	0.252	0.077	0.500
Basque		Mean	12.204	45.766	0.066	0.318	2.868	5.872	5.869	0.491	0.250	0.056	6.980	446.905	0.061	0.005	0.513
Country	1,541	Std. Dev.	3.817	16.736	0.249	0.466	1.068	0.975	0.460	0.072	0.433	0.230	1.413	230.598	0.239	0.072	0.500
TOTAL	**9,651**	***Mean***	**11.215**	**42.654**	**0.049**	**0.309**	**2.879**	**5.677**	**5.670**	**0.502**	**0.307**	**0.065**	**8.879**	**559.305**	**0.044**	**0.004**	**0.503**
		Std. Dev.	**3.781**	**14.101**	**0.203**	**0.453**	**0.951**	**0.956**	**0.358**	**0.064**	**0.460**	**0.243**	**1.445**	**251.587**	**0.192**	**0.063**	**0.500**

Source: Own compilation from PISA 2006

Outputs and plausible values

The educational output is very difficult to measure due to its inherent intangibility. Education does not consist only on the ability to repeat information and answer questions, but also involves the skills to interpret information and to learn how to behave in society. In spite of the multi-product nature of education, most studies have used as outputs the results obtained in cognitive tests since they are difficult to manipulate and respond to administration demands. But perhaps, as *Hoxby* (2000) states, the most important reason could be that both policy makers and parents use this criterion to evaluate the educational output.

In this study we use the test scores obtained by students in the three competences evaluated in *PISA* (mathematics, reading comprehension and science) as the vector of educational output. One of the main advantages of the *PISA* study is that it does not evaluate cognitive abilities or skills through a dichotomous variable (PASS, NOT PASS), so each student receives a score in each test within a continuous scale. On the other hand, *PISA* uses the concept of plausible values to measure the students' performance, which corresponds with five random values from the students' results distribution in each discipline[30]. This approach let us to consider the wide margin of error in the measure of achievements due to the fact that these measures are abstract, complex and subject to the special circumstances of students and their environment on the date of their exams.

Table 4 reports the average plausible values[31] for the three tests (mathematics, reading comprehension and science) in both *PS* and *GDPS* after controlling the selection bias. Five different plausible values in the three tests are used as outputs in the *PSM* and the educational efficiency analysis respectively. In order to obtain unbiased results five different efficiency analysis for each trio of plausible values are estimated and afterwards averaged, instead of using mean values to obtain only one efficiency measure (*OECD* 2005). Similarly, five different *ATT* measures for each plausible value and region are calculated and averaged.

As Table 4 shows, *GDPS* outperform *PS*. The average of the students' performance is higher for *GDPS* in all disciplines and regions. It is also remarkable that, generally, standard deviations are higher for *PS* compared with their *GDPS* counterparts.

[30] For a review of plausible values literature see *Mislevy et al.* (1992). For a concrete survey of *Rasch* model and how to obtain feasible values and estimations in *PISA*, see *OECD* (2005).

[31] From now on and for presentation purposes we only report the mean results of analyzing the five plausible values in each discipline.

Table 4: Descriptive statistics of PSM outputs sample

			Government-dependent private Schools					*Public Shools*		
	Obs		*Math*	*Read*	*Scie*	*Obs*		*Math*	*Read*	*Scie*
Andalusia	*353*	*Mean*	478.04	464.88	485.35	*1,039*	*Mean*	466.77	447.34	479.58
		Std. Dev.	83.50	81.93	85.45		*Std. Dev.*	83.55	85.82	87.32
Aragon	*451*	*Mean*	521.58	492.70	525.24	*924*	*Mean*	506.82	475.76	505.87
		Std. Dev.	93.53	84.38	82.38		*Std. Dev.*	97.99	87.88	89.92
Asturias	*374*	*Mean*	498.65	491.21	517.68	*941*	*Mean*	495.29	472.54	503.05
		Std. Dev.	78.82	81.76	79.98		*Std. Dev.*	80.19	82.15	82.05
Cantabria	*489*	*Mean*	508.46	485.44	519.29	*894*	*Mean*	504.13	474.90	509.47
		Std. Dev.	79.65	80.93	82.86		*Std. Dev.*	87.38	86.38	85.07
Castile	*458*	*Mean*	527.12	499.62	531.54	*902*	*Mean*	512.87	472.73	519.65
Leon		*Std. Dev.*	76.50	72.21	76.42		*Std. Dev.*	83.50	75.30	80.71
Catalonia	*328*	*Mean*	494.70	487.65	504.03	*773*	*Mean*	475.84	466.89	480.54
		Std. Dev.	77.83	85.96	79.19		*Std. Dev.*	82.92	87.10	88.49
Galicia	*296*	*Mean*	509.77	506.36	526.14	*1,084*	*Mean*	489.44	471.99	499.05
		Std. Dev.	84.40	88.87	85.80		*Std. Dev.*	81.30	88.82	86.44
Navarre	*605*	*Mean*	537.67	496.09	529.99	*877*	*Mean*	504.36	468.12	498.07
		Std. Dev.	85.32	71.94	85.03		*Std. Dev.*	89.71	82.37	88.99
Rioja	*563*	*Mean*	532.31	505.82	529.48	*676*	*Mean*	523.92	486.02	517.30
		Std. Dev.	81.73	79.09	81.64		*Std. Dev.*	89.52	82.07	88.80
Basque	*2,255*	*Mean*	515.76	502.93	509.02	*1,541*	*Mean*	487.00	473.56	481.16
Country		*Std. Dev.*	78.67	80.90	79.92		*Std. Dev.*	87.37	92.28	84.28
TOTAL	***6,172***	***Mean***	***512.41***	***493.27***	***517.78***	***9,651***	***Mean***	***496.64***	***470.99***	***499.37***
		Std. Dev.	***82.00***	***80.80***	***81.87***		***Std. Dev.***	***86.34***	***85.02***	***86.21***

Table 5 summarizes all the information described above.

Table 5: Variable definitions

VARIABLE	*DESCRIPTION*
Outputs	
MATH	Student’s result on mathematics (5 plausible values)
READING	Student’s result on reading (5 plausible values)
SCIENCE	Student’s result on science (5 plausible values)
Control variables for the propensity score matching analysis	
PARED	Highest parental education in years
HISEI	Highest parental occupational status
IMMIGRANT	The student and/or parents' students was/were born abroad (1 = yes; 0 = no)
CITY	School community (1 = city or large city; 0 = town, small town or village)
SCHOOL	Attending *GDPS* (1 = yes; 0 = no); Dependent variable in the logit model.
Inputs variables for the parametric distance function approach	
SCMATEDU	Index of the quality of the school’s educational resources
ESCS	Index of economic, social and cultural status
PEER	Average ESCS index of the student’s peer group
PCGIRLS	Proportion of girls in the school
STRATIO	The weighted number of teachers per 100 students
Control variables for the parametric distance function approach	
REPONE	The student has repeated a school year (1 = yes; 0 = no)
REPMORE	The student has repeated more than one school year (1 = yes; 0 = no)
SCHLSIZE	Number of students in school
FIRSTGEN	The student and at least one of the parents were born abroad (1 = yes; 0 = no)
SECGEN	The student was born in Spain but at least one of the parents was not (1 = yes; 0 = no)
GENDER	The student gender (1 = girl; 0 = boy)

4. EMPIRICAL ANALYSIS

In this section, we present the main results obtained in our analysis. Firstly, Table 6 shows the logit results. As expected, the variables related to the student’s socioeconomic background are positive and significant in all regions, which indicates that the probability of attending *GDPS* increases when the family present less problems to afford the voluntary fee. Moreover, being an immigrant reduces significantly the probability of attending *GDPS* in Andalusia, Aragon, Basque Country, Catalonia, Navarre and La Rioja. Finally, living in a city or big city is also highly related to the probability of attending *GDPS*, although in Asturias this relationship is only significant at the 90% level.

Table 6: Mean Logit regression

		Cons			Pared			Hisei			Immigrant			City		
Region	*Obs*	*Coeff*	*Std.Dev.*	*Prob*	*Coeff*	*Std.Dev.*	*Prob*	*Coeff*	*Std.Dev.*	*Prob*	*Coeff*	*Std.Dev.*	*Prob*	*Coeff*	*Std.Dev.*	*Prob*
Andalusia	1,419	***-2.373***	0.184	0.000	***0.098***	0.015	0.000				-2.527	1.022	0.013	***0.723***	0.129	0.000
Aragon	1,376	***-1.924***	0.215	0.000	***0.054***	0.016	0.001				***-1.421***	0.347	0.000	***1.031***	0.126	0.000
Asturias	1,318	***-1.738***	0.229	0.000	***0.061***	0.018	0.001				-0.586	0.460	0.203	0.233	0.127	0.066
Basque Country	3,797	-0.122	0.099	0.218				***0.008***	0.002	0.000	***-1.561***	0.202	0.000	***0.515***	0.071	0.000
Cantabria	1,385	***-1.519***	0.213	0.000	***0.049***	0.017	0.004				-0.165	0.316	0.601	***1.102***	0.126	0.000
Castile Leon	1,369	***-1.830***	0.172	0.000				***0.023***	0.003	0.000	0.018	0.358	0.960	0.253	0.123	0.040
Catalonia	1,149	***-2.011***	0.229	0.000	***0.048***	0.018	0.007				***-0.995***	0.259	0.000	***1.382***	0.139	0.000
Galicia	1,381	***-2.550***	0.227	0.000	***0.083***	0.019	0.000				-0.372	0.444	0.403	***1.165***	0.148	0.000
Navarre	1,489	***-2.326***	0.214	0.000	***0.109***	0.016	0.000				-0.586	0.249	0.019	***1.418***	0.116	0.000
Rioja	1,240	***-1.678***	0.214	0.000	***0.083***	0.017	0.000				***-1.137***	0.293	0.000	***1.087***	0.123	0.000

Source: Own compilation from PISA 2006

Secondly, we report the traditional *ATT* measure of the impact of attending *GDPS* across regions. Then, the *ATTpf* and *ATTasi* are presented after taking into account all relevant educational inputs and the average school inefficiency in each school type, respectively.

4.1. Average Treatment Effect on the Treated

Table 7 shows the mean *ATT* in *PISA* score and we also report the *ATT* in standard deviation for each region referring to average total Spain *PISA* score. A positive (negative) difference implies that in average *GDPS* (*PS*) students perform better (worse) than their *PS* (*GDPS*) counterparts.

Table 7: ATT in PISA score and in standard deviation across Regions

	Obs	*Mathematics*			*Reading*			*Science*		
Region	*N*	*ATT*	*ATT(Std.Dev)*	*t-value*	*ATT*	*ATT(Std.Dev)*	*t-value*	*ATT*	*ATT(Std.Dev)*	*t-value*
Andalusia	1393	2.16	0.03	0.43	8.52	0.11	1.71	-7.59	-0.09	-1.42
Aragon	1376	4.33	0.05	0.74	9.87	0.11	1.89	6.50	0.07	1.42
Asturias	1316	-4.81	-0.05	-1.00	***12.71***	***0.15***	2.46	7.32	0.08	1.50
Basque Country	3797	17.67	0.20	5.64	***15.72***	***0.18***	5.08	***17.25***	***0.20***	5.48
Cantabria	1383	***-10.10***	***-0.12***	-2.15	-3.52	-0.04	-0.72	-4.51	-0.05	-1.03
Castile-Leon	1360	0.99	0.01	0.15	***18.11***	***0.21***	3.25	0.65	0.00	0.11
Catalonia	1101	***16.49***	***0.19***	2.88	***16.12***	***0.19***	2.54	***18.42***	***0.21***	3.25
Galicia	1380	4.89	0.06	0.87	***23.26***	***0.28***	4.01	***13.42***	***0.16***	2.29
Navarre	1483	***21.28***	***0.25***	3.99	***22.83***	***0.27***	4.74	***22.70***	***0.26***	3.81
Rioja	1239	-5.39	-0.07	-1.06	8.25	0.10	1.77	-2.44	-0.03	-0.46

Source: Own compilation from PISA 2006

The most significant impact of attending *GDPS* is observed in Navarre, where students present the highest significant and positive *ATT* in all disciplines, being the mean differential about 22 points in *PISA* score and 0.26 standard deviations from average total Spain *PISA* scores. A similar effect is observed in students from Basque Country or Catalonia, where all parameters are positive and significant. On the other hand, *PS* students from Cantabria perform significantly better on mathematics; where non-treated students outperform treated students by 0.12 standard deviations. Secondly, we observe that the average impact of attending *GDPS* is higher (lower) on reading (mathematics) in all regions and, on the other hand, there is an important variability in this effect among regions and disciplines.

4.2. Average Treatment Effect on the Treated on the production frontier

Results presented in section 4.1 show a better performance of *GDPS* students in all regions, with the exception of the significant *ATT* on mathematics in Cantabria. However, this approach does not take into account all the essential variables in the educational production function once school has been chosen, such as the students' socioeconomic background, the peer-group effect or the school variables. So, in order to measure correctly the efficiency impact of attending *GDPS*, we estimate five output distance functions, one for each trio of plausible values, for both school types in each region[32].

First order output parameters are positive and significant which implies that efficiency increases with performance in these subjects, *ceteris paribus*. The opposite effect is found for the main input coefficients, which are generally negative and significant in all regional estimations. These results imply that an input expansion reduces students' efficiency, keeping the output vector fixed. We also observe that the impact of socioeconomic background on achievements is generally higher for *PS* across regions. Tables 8 and 9 show the first order parameters for outputs and inputs included in the *translog* distance function, respectively, after averaging the five estimations. In order to facilitate the interpretation of parameters, the original variables were transformed into deviations from the mean values, so first order parameters should be interpreted as the partial elasticity[33] of the output or input with respect to the distance at mean values.

[32] One hundred distance functions were estimated, although for the sake of simplicity these tables do not appear in this paper. All of them are available upon request to the authors.

[33] Notice that the sign of the first order inputs parameters may be turned in order to facilitate a straightforward analysis of output-input elasticities.

Table 8: First order outputs parameters from the distance functions across Regions

School ownership	*Government-dependent private Schools*			*Public Schools*		
Regions	*Mathematihcs**	*Read*	*Science*	*Mathematihcs*	*Read*	*Science*
Andalusia	<u>*0.4741*</u>	0.3668	**0.1591**	<u>*0.4347*</u>	**0.2281**	**0.3371**
Aragon	<u>*0.1116*</u>	**0.3832**	**0.5051**	<u>*0.0495*</u>	**0.4490**	**0.5015**
Arsturias	<u>*0.4563*</u>	**0.2230**	**0.3206**	<u>*0.4693*</u>	**0.3322**	**0.1985**
Basque Country	<u>*0.4973*</u>	**0.3234**	**0.1794**	<u>*0.5265*</u>	**0.2768**	**0.1967**
Cantabria	<u>*0.6237*</u>	0.1261	0.2502	<u>*0.4432*</u>	**0.2953**	**0.2615**
Castile-Leon	<u>*0.2559*</u>	**0.2906**	**0.4534**	<u>*0.2465*</u>	**0.3380**	**0.4155**
Catalonia	<u>*0.5469*</u>	**0.3445**	0.1086	<u>*0.5543*</u>	**0.2789**	**0.1668**
Galicia	<u>*0.7440*</u>	0.0544	**0.2015**	<u>*0.3579*</u>	**0.3451**	**0.2970**
Navarre	<u>*0.3995*</u>	**0.5428**	0.0577	<u>*0.4909*</u>	**0.4761**	0.0330
Rioja	<u>*0.3913*</u>	**0.3635**	**0.2452**	<u>*0.3989*</u>	**0.3766**	**0.2246**

Source: Own compilation from *PISA* 2006. * This output was chosen as numeraire.

Table 9: First order inputs parameters from the distance functions across Regions

Government-dependent private Schools											
Regions	*Scmatedu*	*Escs*	*Peer*	*Pcgirls*	*Repone*	*Repmore*	*Stratio*	*Schsize*	*Firstgen*	*Seggen*	*Sex*
Andalusia	-0.0774	**-0.0924**	**-0.2491**	**-0.1699**	**0.1326**	**0.2328**	-0.1271	0.0258	(omitted)	-0.1728	0.0191
Aragon	-0.0323	**-0.1846**	0.4297	**-0.1292**	**0.1342**	**0.2445**	**-0.5200**	**-0.0229**	-0.0143	-0.0494	0.0174
Arsturias	-0.0965	-0.1063	0.0009	-0.0235	0.1396	0.2597	0.2660	0.0511	-0.0132	**0.4858**	**0.0349**
Basque Country	-0.0078	**-0.0983**	**-0.1565**	**-0.1577**	**0.1473**	**0.2682**	-0.0188	**-0.0223**	0.0225	0.0094	0.0089
Cantabria	-0.1948	-0.2047	-0.9694	-0.2418	**0.1466**	**0.2154**	-0.3464	0.0081	**0.0797**	0.0526	**0.0302**
Castile-Leon	0.0131	**-0.1245**	-0.1502	**-0.1106**	**0.1322**	**0.1859**	-0.2193	-0.0011	**0.1214**	(omitted)	0.0147
Catalonia	-0.0614	**-0.1261**	-0.5394	-0.0158	**0.1158**	**0.1544**	0.5759	**-0.0373**	0.0108	0.0837	0.0217
Galicia	0.0819	**-0.1133**	-0.5988	-0.1720	**0.1264**	**0.2147**	0.5811	0.0147	-0.2008	-0.0348	**0.0620**
Navarre	-0.0050	**-0.1150**	-0.0105	**-0.1080**	**0.1749**	**0.2285**	0.1435	0.0170	-0.0143	-0.0063	0.0027
Rioja	0.0671	**-0.1409**	-0.0712	-0.0508	**0.1321**	**0.1820**	0.4774	**0.0288**	0.0029	(omitted)	-0.0105
Public Schools											
Regions	*Scmatedu*	*Escs*	*Peer*	*Pcgirls*	*Repone*	*Repmore*	*Stratio*	*Schsize*	*Firstgen*	*Seggen*	*Sex*
Andalusia	-0.0095	**-0.1075**	-0.0954	0.1772	**0.1501**	**0.2784**	-0.0857	-0.0196	-0.0300	0.0876	**0.0389**
Aragon	-0.0750	**-0.1160**	**-0.4111**	-0.2179	**0.1375**	**0.2729**	**-0.3560**	-0.0001	**0.0470**	0.0938	-0.0134
Arsturias	-0.0476	**-0.1077**	-0.1475	**-0.2454**	**0.1238**	**0.2659**	0.1906	-0.0244	-0.0209	0.0239	**0.0175**
Basque Country	-0.0062	**-0.0831**	**-0.2758**	-0.1332	**0.1584**	**0.2891**	-0.0251	**0.0139**	**0.0415**	-0.0494	0.0092
Cantabria	-0.0022	**-0.1629**	**-0.3664**	-0.0191	**0.1480**	**0.2804**	-0.0488	-0.0112	**0.0543**	0.0859	**0.0243**
Castile-Leon	-0.0165	**-0.0570**	**-0.3426**	-0.0516	**0.1364**	**0.2056**	**-0.1088**	**-0.0323**	**0.0676**	-0.0128	0.0163
Catalonia	-0.0175	**-0.1322**	**-0.2123**	-0.0168	**0.1579**	**0.2419**	-0.0101	0.0146	**0.0684**	-0.0293	0.0153
Galicia	-0.0104	**-0.0882**	**-0.1385**	**-0.1094**	**0.1480**	**0.2702**	0.1535	**0.0359**	0.0124	0.0780	**0.0182**
Navarre	**-0.0778**	**-0.1080**	-0.0167	**-0.5548**	**0.1576**	**0.2749**	0.1599	-0.0084	0.0203	0.0032	-0.0061
Rioja	-0.0227	**-0.1121**	-0.3358	-0.2132	**0.1489**	**0.1965**	**-0.4240**	**-0.0524**	**0.0723**	0.0479	-0.0045

Source: Own compilation from *PISA* 2006

From both, *GDPS* and *PS*, regional distance function estimations we obtained the *ATTpf* measurement. The ATT*pf* measurement allows analyzing the average impact of attending *GDPS* all educational inputs have been considered and placing each student on its own production frontier.

As we mentioned above, we may project each student to his/her production frontier and average the results or, we could instead, select a group of representative students to analyze the impact of attending *GDPS*. For the sake of simplicity in this study the *ATTpf* and *ATTasi* are calculated for two hypothetical male non-repeater Spanish (non-immigrant) students (all dummy variables take value zero) with average inputs and control variables. We think that this representative student projected against the two production frontiers illustrate better the average impact of attending *GDPS* than averaging the results of all students with very different characteristics in terms of inputs and control variables.

Table 10 reports *ATTpf* in *PISA* score and in standard deviations from average total Spain *PISA* scores for each discipline[34].

Figures from Table 10 show a better behavior of *GDPS* on academic achievements in all disciplines after all educational determinants are considered*.* Once the educational inputs and the full efficiency are taken into account, students attending *GDPS*, close to the mean inputs and control variables values, significantly outperform *PS* in all regions and subjects, with the exception of Aragon and La Rioja, where no significant differences are found. For example, *GDPS* advantage is about 0.88 standard deviations from average total Spain *PISA* scores in Navarre and approximately 0.4 in Basque Country and Castile-Leon. We also observe a higher variability of the school type impact across regions when we use the *ATTpf*. The difference in the impact of school type is, for example, as high as 0.86 standard deviations from average *PISA* scores between students from Aragon and Navarre, and 0.47 between students from Castile-Leon and Navarre. These differences are only 0.33 and 0.06 when we use the *ATT* measure. Overall, the results indicate that a fully efficient student will perform better in *GDPS* than in *PS* in all regions with the exception of Aragon and La Rioja.

[34] Three predicted values (mathematics, reading and science), one for each distance function estimation, are obtained.

Table 10: ATTpf in PISA score and in standard deviation across Regions

	Obs	*Mathematics*			Reading			Science		
Region	*N*	*ATTpf*	*ATTpf (sd-dev)*	*t-value*	*ATTpf*	*ATTpf (sd-dev)*	*t-value*	*ATTpf*	*ATTpf (sd-dev)*	*t-value*
Andalusia	1,393	14.88	0.17	6.50	14.27	0.17	7.47	15.23	0.18	6.72
Aragon	1,376	1.68	0.02	0.45	1.58	0.02	0.45	1.69	0.02	0.45
Asturias	1,316	17.56	0.20	2.70	16.85	0.20	2.70	17.94	0.21	2.79
Basque Country	3,797	35.12	0.40	19.73	34.35	0.40	19.38	34.73	0.40	20.22
Cantabria	1,383	7.30	0.08	3.3	6.89	0.08	3.5	7.41	0.09	3.36
Castile-Leon	1,360	35.65	0.41	8.14	33.17	0.39	8.33	36.09	0.42	8.51
Catalonia	1,101	26.12	0.30	5.62	25.56	0.30	5.38	26.42	0.30	5.68
Galicia	1,380	31.39	0.36	7.06	30.17	0.35	6.98	32.07	0.37	7.07
Navarre	1,483	77.76	0.89	4.15	72.56	0.85	4.16	77.34	0.89	4.12
Rioja	1,239	3.71	0.04	1.02	3.56	0.04	1.13	3.93	0.05	1.13

Source: Own compilation from PISA 2006

4.3. Average Treatment Effect on the Treated assuming school inefficiency

The last step of our procedure is to correct the *ATTpf* measures by the average school inefficiency. From our point of view, this last measure is a good tool to test whether or not there is equality of educational opportunities within each region because it takes into consideration the presence of real educational inefficiencies. Table 11 reports the *ATTasi* measurement in *PISA* scores and in standard deviations. We observe that the impact of the *GDPS* attendance increases with respect to *ATT* after allowing for different efficiency behaviors among both school types, although there is no specific pattern when compared to the *ATTpf*. Some regions present a higher impact of attending *GDPS* when using *ATTasi* instead of the *ATTpf*, such as Andalusia, Aragon, Basque Country and Catalonia. Hence, students attending *GDPS* are relatively more efficient than their *PS* counterfactuals in these latter regions. On the other hand, in Asturias, Cantabria, Castile-Leon, Galicia, Navarre and La Rioja the *ATTpf* values are higher than those of the *ATTasi*. This result indicates that the performance of *PS* students in those regions improves when we use the *ATTasi*, suggesting that there are some divergences in efficiency between both school types across regions. Consequently, *GDPS* students from Andalusia, Basque Country and Catalonia, whose process of decentralization in education was twenty years before, seem to be more efficient than ones in other regions where the decentralization occurred later. In addition, Andalusia, Basque Country, Catalonia and Navarre are the regions with the higher *ATTasi* values. We believe that this is an indication of educational equality of opportunities being at risk in these four regions because school choice seems to have a sizable effect on test scores, with *GDPS* performing significantly better. Nevertheless, more research is needed to confirm this result.

On the other hand, Rioja is the only region where *PS* students perform significantly better than *GDPS* ones. It is worth highlighting that, whereas the average impact of attending *GDPS* is positive on the production frontier (*ATTpf*=3.71), this value turns negative considering the average school inefficiency divergence between both school types (*ATTasi* = -4.36). In other words, the best option for a family who is seeking a school in this region would be to attend the most efficient *GDPS*. However without any efficiency information the second best would be attending a *PS*.

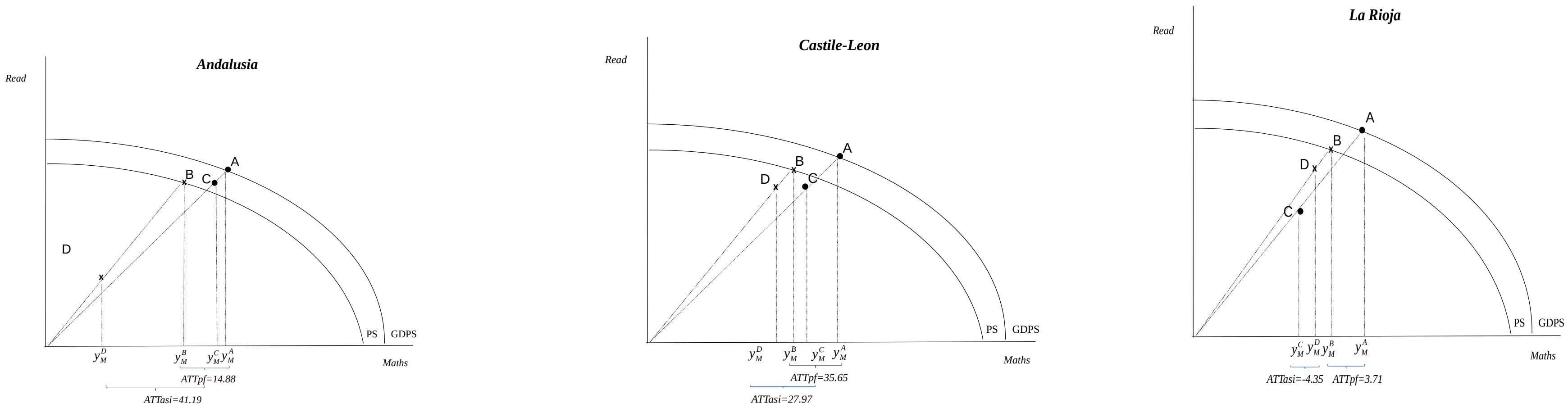
Table 11: ATTasi in PISA score and in standard deviation across Regions

	Obs	*Mathematics*			*Reading*			*Science*		
Region	*N*	*ATTasi*	*ATTasi (sd-dev)*	*t-value*	*ATTasi*	*ATTasi (sd-dev)*	*t-value*	*ATTasi*	*ATTasi (sd-dev)*	*t-value*
Andalusia	1,393	41.19	0.47	3.81	39.46	0.46	3.68	42.16	0.49	3.76
Aragon	1,376	22.50	0.26	17.16	21.18	0.25	18.91	22.61	0.26	17.26
Asturias	1,316	11.64	0.13	7.04	11.17	0.13	7.04	11.89	0.14	7.72
Basque Country	3,797	46.88	0.54	82.00	45.53	0.53	76.33	46.28	0.53	117.11
Cantabria	1,383	3.10	0.04	3.28	2.92	0.03	3.75	3.14	0.04	3.45
Castile-Leon	1,360	27.97	0.32	18.67	26.03	0.31	17.98	28.32	0.33	16.42
Catalonia	1,101	32.84	0.38	17.42	32.13	0.38	15.97	33.21	0.38	18.36
Galicia	1,380	29.95	0.34	15.15	28.77	0.34	14.47	30.59	0.35	15.16
Navarre	1,483	62.84	0.72	35.22	58.23	0.68	38.79	62.01	0.72	43.09
Rioja	1,239	-4.36	-0.05	-2.77	-4.08	-0.05	-2.68	-4.32	-0.05	-2.80

Source: Own compilation from PISA 2006

In order to illustrate the potential of our approach, **Fig. 2** shows three different examples of *ATTpf* and *ATTasi* in mathematics (Andalusia, Castile-Leon and La Rioja respectively). As we can see, *GDPS* frontier is always above the *PS* one which implies a better technology in transforming educational inputs into academic attainments. The first graph (Andalusia) represents a situation where the impact of attending *GDPS* is higher when *ATTasi* is used instead of *ATTpf*. This information points out that, once the average efficiency in both school types is taken into account, *GDPS* students perform even better than *PS* ones. This result suggests a significant management problem in *PS* compared with *GDPS*. The situation in Castile-Leon is similar but in this case *ATTpf* is higher than *ATTasi,* which means that the gap between both school types decreases from 35.65 to 27.97 when average efficiency is considered. This implies that *PS* are on average more efficient than *GDPS*. Finally, La Rioja represents the only case where the difference favors *GDPS* when we use *ATTpf,* but benefits *PS* when we use *ATTasi*. This situation seems to indicate that, although the best schools are *government dependent privately managed,* this group is more inefficient on average than their public counterparts.

Figure 2: Some ATTpf and ATTasi examples for Andalusia, Castile-Leon and La Rioja



5. CONCLUSIONS

In this paper, we propose an original approach to compare students' achievements and efficiency divergences between publicly financed schools in Spain. Firstly, we use propensity score matching (*PSM*) in order to obtain unbiased students comparisons between different school types. This technique allows matching treated students (attending *GDPS*) with their counterfactuals (attending *PS*) to guarantee that we compare homogeneous groups. Secondly, we analyze the educational divergences by school ownership through stochastic distance function from *PSM* sub-samples. Thirdly, the implementation of both methodologies simultaneously allows us to calculate two new measures of the differences in student performance across school types, the Average Treatment of the Treated on the Production Frontier (*ATTpf*) and the Average Treatment of the Treated assuming school inefficiency (*ATTasi*). The use of these measures improves and complements the conclusions that can be obtained with other standard measures.

We estimate two different output distance functions, one for each school type, using a *PSM* subsample for each Spanish region. The results in terms of *ATTasi* seem to reflect divergences in the students' performance between both school types across regions. We observe that students attending *GDPS* perform significantly better than those from *PS* in Andalusia, Basque Country, Catalonia and Navarre, whose decentralization in education was earlier at the beginning of the eighties. This result suggests that the functioning and organization in these *GDPS* is generally better than in other regions where the decentralization process occurred in more recent years. Only in one region, La Rioja, students attending *PS* perform better than those in *GDPS*.

Furthermore, we think that our model allows detecting the best schools in terms of efficiency. This schools can then be used as references to do benchmarking between *GDPS* and *PS*. Moreover, we consider that this approach is a good tool to measure and to supervise the equality of educational opportunities. According to our results, a student could be penalized in more than half standard deviation due to technological and efficiency differences between publicly financed schools, which strike to us as an undesirable outcome.

To summarize, we believe that the conceptual framework presented in this paper, improves upon the estimation of the effect of school ownership on students' performance. Furthermore, this approach provides an appealing methodology for policy makers in order to benchmark the best educational practices, avoiding incorrect comparisons between the *government dependent private* and the *public* system. Performing a similar analysis over time would allow us to track the evolution of the differences in performance across schools in order to ensure the equality of the educational opportunities in Spain and the improvement of educational efficiency.

REFERENCES

Afonso, A. and ST. Aubyn, M. (2006): *"*Cross-country Efficiency of Secondary Education Provision: a Semi-parametric Analysis with Non-discretionary Inputs*"*, *Economic Modelling*, 23 (3): 476-491.

Alchian, A.A. (1950): "Uncertainty, Evolution and economic theory", *Journal of Political Economy*, 58: 211-221.

Angrist, J.; Bettinger, E.; Bloom, E.; King, E. and Kremer, M. (2002): "Vouchers for private schooling in Colombia: Evidence from a randomized natural experiment", *American Economic Review*, 92 (5): 1535-1538.

Banker, R. D.; Janakiraman, S. and Natarajan, R. (2004): "Analysis of trends in technical and allocative efficiency: an application to Texas public school districts", *European Journal of Operational Research*, 154: 477-491.

Barnett, R.; Glass, J.; Snowdon, R. and Stringer, K. (2002): "Size, performance and effectiveness: cost-constrained measures of best-practice performance and secondary school size", *Education Economics*, 10 (3): 291-311.

Betts, J.R. and Shkolnik, J.L. (2000): "The effects of ability grouping on student achievement and resource allocation in secondary schools", *Economics of Education Review*, 19: 1-15.

Battese, G.E. and Coelli, T.J. (1998): "Prediction of Firm-Level Technical Efficiencies with a Generalized Frontier Production Function and Panel Data", *Journal of Econometrics*, 38: 387-399.

Bradley, S. and Taylor, J. (1998): "The effect of school size on exam performance in secondary schools", *Oxford Bulleting of Economics and Statistics*, 60: 291-324.

Calero, J. and Escardibul, J.O. (2007): "Evaluación de servicios educativos: el rendimiento en los centros públicos y privados medido en PISA-2003", *Hacienda Pública Española*, 183 (4/2007): 33-66.

Calero, J.; Choi, A. and Waisgrais, S. (2010): "¿Qué determina el fracaso escolar en España? Un estudio a través de PISA-2006", *paper presented in XVII Encuentro de Economía Pública*, Murcia, February, 2010

Calero, J. and Waisgrais, S. (2009): "Rendimientos educativos de los alumnos inmigrantes: identificación de la incidencia de la condición de inmigrante y de los peer-effects", *paper presented in XVI Encuentro de Economía Pública*, Granada, February, 2009.

Caliendo, M. and Kopeining, S. (2008): "Some practical guidance for implementation of Propensity Score Matching", Journal of Economic Surveys, 22(1): 31-72

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

Carroll, J. (1963): "A model of schooling learning", *Teachers College Record*, 64: 723-33.

Chiswick, B. and DebBurman, N. (2004): "Educational attainment: analysis by immigrant generation", *Economics of Education Review*, 23 (4): 361-379.

Chubb, J.E. and Moe, T.M. (1990): "Politics, markets and America's schools", *The Brookings Institution,* Washington DC*.*

Coelli, TJ.. and Perelman, S. (1999): "A comparison of parametric and non-parametric distance functions, with application to European railways", *European Journal of Operational Research*, 117: 326-339.

Coelli, T.J. and Perelman, S. (2000): "Technical efficiency of European railways, a distance function approach", *Applied Economics*, 32: 1967-1976.

Cordero, J.M.; Pedraja, F. and Santín, D. (2010): "Enhancing the inclusion of non-discretionary inputs in DEA", *Journal of Operational Research Society,* 61: 574-584.

Cortes, K.E. (2006): "The effects of age at arrival and enclave schools on the academic performance of immigrant children", *Economics of Education Review*, 25: 121-132.

Duncan, K.C. and Sandy, J. (2007): "Explaining the performance gap between public and private school students", *Eastern Economic Journal*, 33 (2): 177-91.

Entorf, H. and Minoiu, N. (2005): "What a Difference Immigration Policy Makes: A Comparison of PISA Scores in Europe and Traditional Countries of Immigration", *German Economic Review*, 6 (3): 355-376.

Figlio, D.N. and Stone, J.A. (1997): “School choice and student performance, Are private schools really better?”, Discussion Paper 1141-97, *Institute for Research on Poverty*, University of Wisconsin-Madison, Madison.

Friedman, M. and Friedman, R. (1981): “Free to choose”, *New York: Avon*.

Fuentes, A. (2009): “Raising Education Outcomes in Spain”, *OECD Economics Department Working Papers*, 666, OECD.

Gang, I.N. and Zimmermann, K.F. (2000): “Is child like Parent? Educational Attainment and Ethnic Origin”, *Journal of Human Resources*, 35: 550-569.

Ganzeboom, H.; De Graaf, P.; Treiman, J. and De Leeuw, J. (1992): “A standard international socio-economic index of occupational status”, *Social Science Research*, 21 (1): 1-56.

Goldhaber, D. (1996): “Public and Private High Schools: Is School Choice an Answer to the Productivity Problem?”, *Economics of Education Review*, 15: 93-109.

Greene, W. (2010): “A stochastic frontier model with correction for sample selection”, *Journal of Productivity Analysis*, 34 (1): 15-24.

Grosskopf, S.; Hayes, K.; Taylor, L. and Weber, W. (1997): “Budget-constrained frontier measures of fiscal equality and efficiency in schooling”, *Review of Economics and Statistics*, 79 (1): 116-124.

Hanushek, E.A. (1979): “Conceptual and empirical issues in the estimation of educational production functions”, *Journal of Human Resources*, 14: 351-388.

Hanushek, E.A. (1986): “*School resources and student performance. Is Does money matter?*”, ed. Burtless, G. Washington, DC: The Brooking Institutions.

Hanushek, E.A. (1997): “Assessing the effects of schools resources on students performance: an up-date”, *Educational Evaluation and Policy Analysis,* 19: 141-164.

Hanushek, E.A. (2003): “The failure of input based schooling policies”, *The Economic Journal*, 113: 64-98.

Hanushek, E.A.; Kain, J.F.; Markman, J.M. and Rivkin, S.G. (2001): “Does peer ability affect student achievement?”, Working Paper 8502, *National Bureau of Economic Research*.

Hanushek, E.A. and Luque, J. (2003): “Efficiency and equity in schools around the world”, *Economics of Education Review*, 22: 481-502.

Heckman, J.; Ichimura, H.; Todd, P.E. (1997): “Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme”, *The Review of Economic Studies,* 64 (4): 605-654.

Heckman, J. and Navarro-Lozano, S. (2004): “Using Matching, Instrumental Variables, and Control Function to Estimate Economic Choice Models”, *The Review of Economics and Statistics*, 86: 30-57.

Holmes, C. and Matthews, K. (1984): “The effects of non-promotion on elementary and junior high school pupils: A meta-analysis”, *Review of Educational Research,* 54: 225–236.

Hoxby, C.M. (2000): “The effects of class size on student achievement: new evidence from population variation”, *Quaterly Journal of Economics*, 115: 1,239-1,285.

Kirjavainen, T. and Loikkanen, H.A. (1998), “Efficiency differences of Finnish senior secondary schools: an application of DEA and Tobit analysis”, *Economics of Education Review*, 17 (4): 377-394.

Krueger, A.B. (1999): “Measuring Labor’s Share”, *American Economic Review*, 89 (2):45-51.

Krueger, A.B. (2003): “Economics considerations and class size”, *Economic Journal*, 113: 34-63.

Krueger, A.B: and Zhu, P. (2004): “Another look at the New York City school voucher experiment”, *American Behavioral Scientist*, 47 (5): 658-98.

Levin, H.M. (1974): “Measuring Efficiency in educational production”, *Public Finance Quarterly*, 2: 3-24.

Lovell, C.A.K.; Richardson, S.; Travers, P. and Wood, L.L. (1994): “Resources and functionings, a new view of inequality in Australia”; in, Eichhorn, W. (ed.) “Models and Measurement of Welfare and Inequality”, *Springer-Verlag*, Berlin, 787-807.

Mancebón, M.J.; Calero, J. Choi, A. and Ximenez, D. (2010): “Efficiency of public and publicly-subsidised high schools in Spain. Evidence from PISA 2006”, *Munich Personal RePEc Archive*, 21,165.

Mayen, C.D.; Balagtas, J.V. and Alexander, C.E. (2010): “Technology Adoption Technical Efficiency: Organic and Conventional Dairy Farms in United Stated”, *American Journal of Agricultural Economics*, 92 (1): 181-195.

McCarty, T. and Yaisawarng, S. (1993): “Technical Efficiency in New Jersey School Districts”, in Fried, H.; Lovell, C.A.K. and Schmidt, S. (ed.): “The Measurement of Productive Efficiency: Techniques and Applications”, *Oxford University Press*, New York.

McEwan, P.J. (2001): “The Effectiveness of Public Catholic and Non-Religious Private Schools in Chile’s Voucher System”, *Education Economics*, 9 (2).

MEC (2008): “Estadísticas de las enseñanzas no universitarias. Datos Avance. Curso 2007-2008”, *Ministerio de Educación*, Madrid.

Mislevy, R.J.; Beaton, A.E.; Kaplan, B. and Sheehan, K.M. (1992): “Estimating population characteristics form sparse matrix samples of item responses”, *Journal of Educational Measurement,* 29: 133-161.

Mora, T.; Escardibul, J.O and Espasa, M. (2010): “The effects of regional educational policies on school failure in Spain”, *Revista de Economía Aplicada*, 1-28.

Muñiz, M. (2002): “Separating Managerial Inefficiency and External Conditions in Data”, *European Journal of Operational Research*, 143 (3): 625-643.

Nechyba, T.J. (2000): “Mobility targeting and private-school vouchers”, *American Economic Review*, 90 (1): 130-146.

Newhouse, D. and Beegle, K. (2006): “The effect of school type on academic achievement”, *The Journal of Human Resources*, 41 (3): 529-557.

OECD (1999): “Classifying educational programmes. Manual for ISCED-97 implementation in OECD countries”, *Organisation for Economic Co-operation and Development*, Paris.

OECD (2005): “PISA 2003 Data Analysis Manual, SPSS users”, *Organisation for Economic Co-operation and Development, Paris.*

Perelman, S. and Santín, D. (2008): “Measuring educational efficiency at student level with parametric stochastic distance functions: an application to Spanish PISA results”, *Education Economics*, 19 (1): 29-49.

Pierson, L.H. and Connell, J.P. (1992): “Effect of grade retention on self-system processes, school engagement, and academic performance”, *Journal of Educational Psychology*, 84: 300–307.

Pritchett, L. and Filmer, D. (1999): “What Education Production Functions Really Show: A Positive Theory of Education Expenditures”, *Economics of Education Review*, 18: 223-239.

Puhani, P. (2000): “The Heckman correction for sample selection and its critique—a short survey”, *Journal of Economic Surveys,* 14: 53–68.

Roederick, M.; Jacob, B. and Bryk, A. (2002): “The impact of high-stakes testing in Chicago on student achievement in promotional gate grades”, *Educational Evaluation and Policy Analysis, 24:* 333–357.

Rosenbaum, P.R. and Donald, B.R. (1983): “The Central Role of the Propensity Score in Observational Studies for Causal Effects”, *Biometrika*, 70 (1): 41-55.

Sander, W. (2001): “The effect of Catholic Schools on Religiosity, Education and Competition”, *National Center for the Study of Privatization in Education.*

Schnepf, V.S. (2008): “Inequality of Learning amongst Immigrant Children in Industrialized Countries”, *IZA Discussion Paper*, 3337.

Shepard, L.; Smith, M., and Marion, S. (1996): “Failed evidence on grade retention”, *Psychology in Schools, 33:* 251–261.

Vandenbergue, V. and Rubin, S. (2004): “Evaluating the effectiveness of private education across countries: a comparison of methods”, *Labour Economics*, 11 (4): 487-506.

Waldo, S. (2007): “On the use of student data in efficiency analysis. Technical efficiency in Swedish upper secondary school”, *Economic of Education Review*, 26: 173-185.

Wechsler, D. (2008): “Wechsler Adult Intelligence Scale”, *Technical and interpretive manual*. San Antonio, TX. Pearson Assessment. (Fourth Edition)

Witte, J. (1992): “Private versus public school achievement: Should the findings affect the choice debate?”, *Economic of Education Review*, 10: 371-394.

Witte, J.F. (1998): “The Milwaukee Voucher Experiment”, *Educational Evaluation and Policy Analysis*, 20 (4): 229-251.

Woessman, L. (2001): “Why students in some countries do better”. *Education Matters*, 1 (2): 67-74.

Wolf, P.J.; Howell, W.G. and Peterson, P.E. (2000): “School Choice in Washington, DC: an evaluation after one year”, *Program on Evaluation Policy and Governance*, Cambridge, Ma, Harvard University.

Zinovyeva, N.; Felgueroso, F. and Vázquez, P. (2008): “Immigration and Students´ Achievement in Spain”, Working Paper 2007-08, *Fundación de Estudios de Economía.*

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