The Determinants of School Dropout: an Analysis from the Students' Perspective

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Abstract:

In this paper we study the determinants of school dropout after compulsory secondary education. We explore how students' perceptions and preferences (subjective variables) affect students' decisions. We analyze data collected directly from students when they had to take a decision concerning their education in their last year of compulsory education (at the age of 16). Our results confirm those obtained by other authors in Spain, that is, family background and labor market conditions affect students' decisions. However, we go one step further and we show that students' inter-temporal preferences as well as the quality of the information received by students, regarding their alternatives after completing compulsory education, explain students' decisions. Additionally, we find significant differences among students depending on the type of school they attend (public *versus* private schools).

Key words: school dropout, demand for education, subjective information, student's inter-temporal preferences.

JEL codes: I21, I23, H42, J24 and C25

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1 Introduction

Since the second part of the 20th century there has been a growing consensus, both from a theoretical as well as from an empirical perspective, that investing in education provides significant private and social returns.

From a labor economics perspective, since the seminal article by Mincer (1974), a positive relationship between human capital and income has been proven to exist and to be robust. According to this literature (Card, 1999, provided a very complete survey on this issue), private returns to schooling are quite high.

From a different perspective, macroeconomists have found also a robust and positive relationship between economic development and human capital levels. See Englander and Gurney 1994, Temple 2006 and also Temple 2001 for a complete survey on this issue, and also Hanushek and Wößmann 2010, Self and Grabowski 2004, for cross-country and country-specific analysis.

Another strand of the human capital literature has focused its analysis on the determinants of the demand for education. In this sense, in the last decades there has been a significant increase in the number of contributions that analyze, from an empirical point of view, the demand of education and the role played by family budget constraints (see Chevalier and Lanot 2002, Acemoglu and Pischke 2000, Cameron and Taber 2000, Becker and Tomes 1986) and family characteristics such as socio-economic status, parental education, etc. (see Cameron and Heckman 1998, 1999, Ermishand Pronzato 2010, etc.).

In Spain, correlation between economic growth and education, on the one hand, and the determinants of education and educational attainment, on the other hand, have deserved attention of an increasing number of authors from different perspectives. Thus, while Serrano (1998 and 2003) analyzed the correlation between economic growth and education, Casquet (2003), Martínez-Grada and Ruiz-Castillo (2002), Petrongolo and San Segundo (2002), Marcenado and Navarro (2001), Beneito et al. (2001) and Salas (2008) focused their analysis on the demand for education and educational attainment.

These contributions are based mainly on the analysis of micro-data on households (or workers) that contain income data, individual characteristics (gender, age, years of schooling, number of siblings) and socio-economic data (individual and parental job status, parental level of education, place of residence –urban versus rural-, unemployment rates, etc.). The availability of data together with the fact that the social science literature posits a great number of mechanisms (relating family structure and children's outcomes[2]) explains why the list of control variables that have been considered in the literature is very extensive.

[2] Very often the variables are not validated from theoretical models but they are based instead on *ad hoc* perceptions.

However, we argue that the empirical approach followed in the existing literature when analyzing school dropout introduces some distortions in the estimates due to the fact that data refers to private agents (workers or households) that have already taken a decision (*ex post*) regarding whether to enter the labor market or continuing with their education.

Then, the aim of this paper is to study school dropout based on subjective and objective data obtained directly from students that were expected to take a decision concerning their education (*ex ante*), that is, in their last year of compulsory education (at the age of 16). We argue that students take their decisions conditioned to their socio-economic environment, which is also validated in the existing literature, but also on the quality of information they receive regarding the different alternatives that exist after compulsory education, their preferences on present-future consumption, their perception on the correlation between education and earnings, or their expected chances to find a job in a labor market that is open to unskilled workers.

Our results, in line with those obtained by other Spanish authors (see Casquet, 2003), confirm the relevance of family background and labor market conditions on students' decisions and educational attainment. However, we go one step further and we show that students' perceptions and students' inter-temporal preferences also matter. Students that prefer to obtain low present wages as opposed to higher future wages show a lower probability to continue their education. Finally, we find significant differences among those students attending public or semipublic schools (these are private schools that receive subsidies that cover 100% of professors' costs and a compensation to cover their expenses). If both models are publicly financed they are expected to offer the same results to their students. If academic results differ this should open the door to analyze what are the differences between them[3] (student segregation, differences in management procedures, professors' labor status, etc.). However, this goal is beyond the scope of this paper.

This paper is structured as follows. In the next section, we present the main characteristics of the students in the Balearic Islands and we describe the questionnaire that was presented to them. In section 3 we describe the sample and the main statistical results. In the fourth section we show the empirical results and the econometric model, which is based on probit estimations. Finally, in section 5 we present our conclusions.

2 Education in the Balearic Islands and the survey data

Most contributions that analyze school dropout and education demand in Spain rely on three surveys that contain micro data on education: *Encuesta de Presupuestos Familiares*, the European Community Household Panel (ECHP) and *Encuesta de*

[3] We must note that professors' wages at public schools are much larger than those received by professors at semi-public schools and the ratio of students per professor is larger in semi-public schools.

Población Activa (EPA). According to these data, different authors have analyzed the correlation between education and earnings and the relationship between budget constraints and education demand. However, current empirical analysis is based on those individuals who had taken already a decision concerning their level of education.

In this paper we want to follow a different strategy. We want to study the impact of students' preferences on their decision to incorporate to the labor market or to continue studying. In order to do so, we obtained our data from students that were expected to take a decision a few months after responding to our questionnaire.

Due to budget constraints, we decided to restrict our sample to the students that live in the Balearic Islands, with total population of 1.130.000 inhabitants distributed in four islands. Besides, we think this case has a special interest because has been a region with a per capita income above the national average, but with higher rates of school dropouts and with less skilled workers. It is justified that this fact is a consequence of being a region specialized in the tourism sector which is intensive in blue-collar workers. Although, to our knowledge, any previous work attempted to deepen in the relation between labor market conditions and school dropouts in the Balearic Islands.

First of all, in order to understand students' choices, it is necessary to have certain knowledge of the Spanish education system structure. Even if most children start school when they are 3 years old, compulsory education starts at 6. Students from 6 to 12 years old must attend primary education and then, there 4 additional years of compulsory secondary school. Students at their fourth year of secondary school (when they are around 16) must decide whether they continue their education or whether they go to the labor market. Finally, there are two additional years of non-compulsory secondary education for those who want to start a university degree. Alternatively, students might opt for vocational training (they must choose a field of specialization), which eventually could allow them to continue their studies at the university, but only in their specialization field.

The structure of the education system explains some results related to the observed enrolment rates in Spain and in the Balearic Islands. Data shows that the enrolment rates drop significantly at the age of 16/17 both in Spain and in the Balearic Islands. In 2008 the enrolment rate in the Balearic Islands for fifteen-year-old students was 89% (99.7% in Spain), while at the age of 16 it dropped significantly to a lower 81.7%[4] (92.8% in Spain) and to an even lower rate of 63.3% (77.8% in Spain) at the age of 17, when education is optional.[5]

This low enrolment rates at the Balearic Islands might seem surprising because the literature states that there is a positive correlation between economic growth and education. However, macro data for the Balearic Islands show that GDP per capita has

[4] This represents a total of 8.239 students attending the last year of compulsory education

[5] Source: *Oficina de Estadística del Ministerio de Educación y Ciencia*.

been well above the Spanish average since the eighties while education indicators referred to students in the Balearic Islands have remained below the average during the same period.

A traditional argument offered to explain these data is that the labor market in the Balearic Islands, in which tourism accounts for 80% of total activity, offers a good opportunity for low skilled youngsters to find a job. In 2007 (fourth quarter), the rate of unemployment for youngster between 16 to 19 years old reached 25,8%, one of the lowest rates in Spain, while the Spanish average was 31.34%. However, this explanation is incomplete because the unemployment rate for qualified workers is smaller also in the Balearic Islands with respect to Spain and more importantly, unemployment rates for qualified workers is below unemployment rates of non-skilled workers in the Balearic Islands. In 2008 (third quarter), 9.8% of total unemployment corresponded to workers with a university degree while in Spain reached 18.34% in the same quarter. Therefore unemployment rates for skilled workers in the Balearic Islands are below Spanish average, meaning that the labor market in the Balearic Islands also demands qualified workers. One of the goals of this paper is to test to which extent the availability of opportunities for low-skilled workers conditions the demand for education.

Our main contribution is that student's preferences and students perceptions also matter to understand school dropouts. We are interested in analyzing the effects of students' perceptions on the relationship between education and income, their preferences on future income versus present income, their perception of their grades, etc. on their decision to continue their education. In accordance with the approach followed in Casquet, 2003, in this paper we control for unemployment rates and also for socio-economic characteristics of the students.

In order to obtain this information, in May 2008, 1.803 students in their fourth year of compulsory education responded a questionnaire aimed at obtaining students' subjective information. These students were expected to take a formal decision by June 2008. This decision might be influenced by socio-economic characteristics as well as by the grades students obtained during compulsory-education. The decision of some of the students, those who were planning to attend the university, might depend also on the expected results of the exams to be taken in June (or September) which would determine their chances to choose the degree they wish. The alternatives faced by students were: 1) dropping out and going to the job market, 2) following their education oriented to a vocational training, 3) continuing their education with two additional years of non-compulsory secondary education (in Spanish "Bachillerato"), what we call high school hereafter, which is a requisite to have access to university, 4) going to the university (if they plan to go to the university after high school, 5) they do not know yet.

In order for our data to be representative the students and the schools that responded the questionnaire were selected to represent the current structure of public and private

schools; schools at larger cities and small villages; schools at villages next to the coast and schools in villages without coastline (labor market is apparently smaller in these villages).

The survey collects information about the variables that might be relevant to determine education demand. We can classify them into four groups:

Variables that refer to **socio-economic characteristics**:

- Household composition
- Parental education degree, distinguishing father and mother;
- Parental labor status;
- Siblings that are following post-secondary education;

Variables that reflect **students' perceptions** on:

- Quality of information received by students concerning the effects of dropping-out or continuing studies;
- Quality of information received by students concerning the different alternatives they faced if they want to continue their studies;
- Relationship between income and education

Questions aimed at capturing **students' preferences and their financial** situation:

- Students were asked on their preference to continue studying. Alternatives: i) dropping-out, ii) vocational training (choosing education with a professional orientation), iii) non-compulsory secondary education (high school), iv) university and, v) no opinion;
- Students that responded that they preferred to dropout were asked their arguments. The alternatives were: i) earning money as soon as possible, ii) their perception of their capability to succeed if they attended higher levels of education, iii) their perception on the relation between education and labor status, iv), the quality of information available to them concerning the different alternatives after completing compulsory education. We also tried to capture whether student's decisions were influenced by her fellows' opinions.
- Those students that preferred to continue studying were asked whether their parents could afford it or not;
- Students that responded that they would but could not study were asked the reasons. Alternatives: i) grades are not sufficient to have access to higher education, ii) their preferred studies were not offered in the Balearic Islands, iii) parental budget restrictions;

- Students, which responded that they could not study because their parents could not afford it, were asked whether they would change their decisions if they were eligible to receive a grant or a credit.

Question that intended to capture students' inter-temporal preferences: we asked students about their willingness to postpone present low earnings in favor of future higher income. We intended to capture the student's opportunity cost of dropping-out

The questions were presented in two rounds. First, they were asked to choose between continuing studying for another six years (high school plus a four year bachelor) and getting a future monthly salary of 1,200 euros versus getting a job just after finishing their compulsory education period for a monthly salary of 800 euros. In the second round, the salary they would receive if they decided to continue studying was modified (increased or decreased according to the answer to the first question), and they were asked whether they would change their initial decision. Those who prefer to study in the first round were asked if they would so if they received a monthly salary of 1,000 euros after their bachelor. Those who preferred to work after compulsory school were asked if they would change their mind if the monthly salary was 1,400 euros after the bachelor. Students' answers allowed us to classify them into four categories, from less patient (denoted in the table as time preference 1) to more patient students (denoted as time preference 4). See Table 6 for details.

3 Statistical results

This section is devoted to the description of the sample and the main statistical results.

1,803 students responded the questionnaire out of 8,239 that were currently registered in the last course of compulsory education in the Balearic Islands. This represents 21% of the target population, which indicates that our data is representative. In order to check whether the questions were clear, the options were relevant and they include all plausible option for all students, a test questionnaire was answered by 155 students before preparing the final questionnaire.

Table 1 shows that 77% of the students that responded the questionnaire were enrolled at public schools and 22% at semipublic schools (education is offered by private institutions but they are publicly financed). Only 1% of the sample represented students enrolled at private schools. This distribution of students is similar to distribution of students among public, semi-public and private schools, which were registered as students at the last year of compulsory education in the Balearic Islands in 2008 (60%, 37% and 3% respectively).

[Table 1 near here]

Table 2 contains the main socio-economic characteristics of the students that responded the questionnaire. The first interesting result is that 65% of the students were born in

1992, meaning that at least 34% of the students had repeated a year. This result might influence students' decision to continue studying or it can restrict students' alternatives (university access is significantly conditioned by student's grades, especially in some degrees).

To what concerns students' family background, the sample is characterized by the following facts. First, 88.47% of the students responded that they had at least one brother or sister, although only 50.17% had at least and elder brother. Second, marital status of the parents correspond mainly (in 77.37% of the cases) to stable couples (married or cohabiting couples). Third, 55.89% of the students' fathers had completed secondary education at least, percentage that is very similar among students' mothers, 55.95%.

[Table 2 near here]

Finally, data in table 2 shows that 94.52% of the students' fathers and 83.36% of the students' mothers were working.

In order to understand this high employment rates among students progenitors, it is important to remark that the questionnaire was responded by May 2008 in a moment when the Balearic Islands' unemployment rate was 9% (8.6% in Spain). However, this situation worsened sharply since the fourth quarter of 2008, and it persists until nowadays because during the first quarter of 2012 the unemployment rate in the Balearic Islands was 28% (24.4% in Spain). Unemployment rates worsened for all strand of the population although it was more intense for youngsters. The unemployment rate for youngsters, from 16 to 19 years old, rose to 40.14% in 2012 in comparison to a 25.88% in 2007. Therefore, from the second part of 2008 students' alternatives were dramatically reduced, which explains the observed increase in attendance rates in post-compulsory education from 2008 to 2011. Nevertheless, the questionnaire was passed in a moment when students had different alternatives after completing compulsory education and their decisions were not influenced by the current crisis. Still, in order to check the impact of unemployment on students' decisions we introduced local unemployment rates in our estimates.

Table 3 collects students' responses concerning their preferences to continue studying. The table contains also student's perception regarding the correlation between education and income. Additionally, the table shows students' opinion on the quality of information they receive from professors and school managers regarding the professional alternatives they will face after completing compulsory education as well as students' opinion concerning the quality of information they receive –if any- that might help them deciding what to study (in case they were willing to continue studying).

The main finding observed from this data is that 94.54% of the 1.803 students that responded the questionnaire confirmed that they were willing to continue their

education. This means that some of the students in the sample that have repeated one year or two (those born before 1992, which account for 35% of the total) responded that they would be willing to continue their education in spite of their low grades.

Another interesting result is that 78.92% of the students perceived a positive relationship between education and income, while 7.36% did not or were not sure about it (13.72%).

Finally, data in Table 3 also indicate that 83.58% of the students thought that they were offered information that might help them decide whether to continue studying or not, and what to study. Still, to what refers to the information received about the professional alternatives they would find if they decided not to study, 77.71% of the students perceived that it is still adequate. Therefore, data suggests that most of the students think that the school provides them with adequate information that may help them taking their decision concerning their professional and educational alternatives.

[Table 3 near here]

Next, in Table 4 we present the main arguments offered by those students that were willing to dropout: i) 58.5% were willing to earn money as soon as possible, ii) 41.5% did not like to study, iii) 12.2% did not like any of the alternatives available to continue their education. Finally, a small fraction of the students (2.4%) said that continuing their education would not help them to find a good job.

[Table 4 near here]

Finally, Table 5 collects the students' answers when they were asked if they would be able to go to the university in case they decided to do so. Most of the students, 67%, responded that if they wished to continue their education they could do so. 12% of the students indicated that they could not continue their education because their grades were unsatisfactory. Another 14% of the students declared that they did not know whether their parents could or could not afford it or whether their grades would be high enough.

However, the most important result to be remarked from this data is that only a small fraction of the students, 4.33%, answered that their parents could not afford their post-compulsory education. More interestingly, 3.19% of these students argued that they should move to another region –probably because their degree was not offered in the Balearic Islands- and they could not afford it, while 1.14% declared that even though they could continue their education in the Balearic Islands, they could not afford it. Finally, 2.51% of the students declared that they should move to the mainland and they were not willing to do so. Therefore, data suggests that budget constraints do not bind the decisions of most students.

[Table 4 near here]

4 Econometric model and results

In this section we explain the methodology we use to analyze the determinants of school dropout and we comment our results.

We assume, for simplicity, that students' indirect utility function can be written as a linear function. Let $U_i^s = \beta_s' x_i + e_i^s$ represent the indirect utility function associated to those students that are willing to continue their education beyond compulsory education, where x_i denotes observable students' characteristics and e_i is an error term that includes students' specific factors that might affect their utility. Let $U_i^w = \beta_w' x_i + e_i^w$ denote the indirect utility function of those students that prefer to dropout after compulsory education.

Given that the indirect utility function cannot be observed directly and we only observe student's willingness to study after compulsory education, we define a dichotomous variable y_i that takes value 1 if the student wants to study and 0 otherwise:

$$\Pr(y_i = 1|x_i) = \Pr\left(U_i^s - U_i^w > 0\right) = \Pr\left(\beta' x_i + e_i > 0 \middle| x_i\right) = \Phi(\beta' x_i) \qquad [1]$$

$\Pr(y_i = 1|x_i)$ represents the probability that an individual i chooses to continue with her education conditioned to her individual characteristics. If we assume that e_i is distributed following a normal distribution, then $\Phi(\cdot)$ denotes the standard normal cumulative distribution function of a probit model.

The vector x_i contains variables, and proxies, associated to the determinants of the education demand. According to the literature mentioned in section 2, there is a wide set of variables that might be considered in x_i: family background (household income, parents' education, number of siblings, labor status), environmental conditions (unemployment rates, economic structure –demand for skilled or unskilled labor-), individual characteristics (students' academic results, inter-temporal preferences, etc.). We use explanatory variables or proxies for all of them.

Local unemployment rates were also introduced as control variables. Unfortunately, the Spanish National Institute of Statistics does not offer unemployment rates at the local level. The problem is that although the number of unemployed workers is available, we do not know the labor force in each local level. Nevertheless, we introduce a proxy using the ratio of unemployed people over total population in each municipality (therefore, we are underestimating unemployment rates).

The structure of the questionnaire was designed so that students faced two different alternatives: i) dropping-out, and ii) continue studying after completing compulsory education. Additionally, those who decided to continue studying faced three additional alternatives i) professional training , ii) high school, as a previous and conditional step to apply to university, iii) going to the university.

[Table 6 near here]

Data in Table 6 describe the variables by type of school used in this section (25 observations were not included in our estimates because the information for all the variables of interest was uncompleted).

It is interesting to remark that 94% of the students prefer to continue their education (any of the alternatives). However, only a 74% of those (70% of the total number of students) are willing to go to high school[6]. As expected, the number of individuals who plan to go to the university is smaller (61%).

This result might be surprising to the reader because while 94% of the students declare that they are willing to continue their education, the enrolment rate at the age of 17 is 61.1%. However, it must be stressed that data refers to revealed preferences and not the real choice. In addition to that, it must be stressed that the questionnaire was presented to the students by May, which means that those students that became 16 before May could have dropped-out already. Nevertheless, we think that our estimates are still valid because data concerning the students' individual characteristics indicate that at least 35% of the students who responded the questionnaire were 16 years old before May. Therefore students who are likely to dropout are represented in our sample. Alternatively, one may argue that students' progenitors do not support students' preferences or that students changed their mind after taking their final exams in June.

4.1 Probit estimations

Table 7 shows the estimation of the revealed preferences on the demand of education. The dependent variable takes value 1 if the individual prefers to continue studying and zero otherwise. Each column represents a different alternative: (1) to go on studying, (2) going to high school, or (3) attending the university. We offer the value of the coefficient and the impact of each explanatory variable on the probability (on the right side) that students decide to continue their education. A positive sign would indicate that students with those characteristics have a larger probability to continue studying. A negative sign would denote the opposite.

The explanatory variables that we considered in the three alternatives are the same. Not surprisingly, the effect on the probability of some of them changes significantly from one alternative to the other, as it is shown in the table.

[Table 7 near here]

We will first refer to the results concerning the impact of the social environment on students' decisions. The variable denoted as *Public school* takes value 1 if the student is registered in a public school and zero otherwise. Results indicate that students that

[6] The rest of the students who are willing to continue their education provided the following answers: 1) 19% wanted to follow a professional training, 2) less than 1% wanted to study other things and, 3) 10% did not want to study or they did not know yet.

attend public schools have a lower probability to continue their education compared to students registered in semi-public schools. This result is very interesting because quality of education offered in both types of schools is supposed to be the same and our results show that students' decisions differ according to the status of their schools. The impact of this variable is even larger when we observe students' decision when the alternatives are high school or university. Results indicate that students attending public schools have a lower probability to attend high school and university in comparison to those students attending semi-public schools, 10.8% and 7.8%, respectively.

In section 4.2 we perform a robustness analysis. We split the sample into subsamples according to the type of school they are registered.

Unexpectedly, unemployment rates seem not to influence students' decisions to go on studying or going to the university. But it has a positive and significant impact only for those students that decide to attend high school.

The fact that students live in a municipality without coast line does not affect students' decisions either. This might be explained by the fact that the island is small and that moving from one corner of the island to the other does not take more than 80 minutes.

Secondly, we refer to the impact of those variables related to students' family background. The number of siblings presents two different effects. On the one hand, siblings reduce the probability that a student decides to continue studying. This variable is negative and significant in all regressions. On the other hand, the fact that students have some siblings who are already studying increases the probability that those students decide to attend high school or university.

In the same group of variables, we find that parental stability does not affect students' decisions in any of the alternatives.

Another variable that is associated to the students' family background is the level of education of student's progenitors. Education is measured through a variable that takes value one if the progenitor has a level of education above secondary school and zero otherwise. Given that there is a multicolinearity problem between parent's levels of education[7], we create a new categorical variable. This variable takes the value zero if none of the parents has a level of education above secondary school, one if at least one of them has that level of education and two if both of them have it. This variable is introduced as a dummy variable in the regression. We use "none of the parents have secondary education" as a reference value. The fact that at least one of the progenitors has secondary education affects the decision of those students that decide to continue their education (although not for high school and university). As expected, if both parents have secondary education the probability that a student decides to continue their education increases. This effect is even larger for those students that decided to attend

[7] The variables father's education and mother's education are significant when we use them separately. But when we regress both, only mother's education seem to be relevant.

high school although it is not so large for those students that decided to attend university (still, the marginal probability is significant and positive).

It is worth mentioning that parental labor status and school dummies (we introduced a dummy for each school) have been introduced in previous estimates but they were systematically irrelevant and they have been discarded from the final estimations.

Finally, we analyze the impact of students' individual characteristics on their decisions. The fact that students think that their grades are not very high plays an important role on students' decisions (this is a subjective variable). The perception of having low grades decreases the student's probability to continue studying. But this effect is even larger when the decision is going to university or high school. Students with low grades have a probability to choose attending high school that is 43.5% lower compared to those students that think that they have good grades (33% when the alternative is the university).

Another variable that offers similar results is the one that takes into account whether students have repeated at least one course (the variable takes the value one if the student is not attending the course that corresponds to her age and zero otherwise). As expected, those students that have repeated a year present a lower probability (-5.24%) to decide to continue their education. This effect is much larger when the decision is high school (-35.8%) or university (-15.20%).

The effect of these two variables suggests that there is some kind of self-selection. Students may discard themselves to continue their education because they might think that it is very likely they will not succeed.

The student's perception concerning the relationship between education and wages has also an impact on her decisions. Those students that think that there is no relationship and those who do not know whether this relationship exists show a lower probability to continue studying. On the contrary, those students that do think that this relationship exists show a higher probability to continue their education.

Finally, regarding the variables in this third block of coefficients, results show that the perception on the quality of information offered to students is a variable that does not affect their decisions. However, there is a negative and slightly significant (at the 10% level) effect on the decision to continue studying but not on the other alternatives.

It is important to remark that although most coefficients present the same sign, regardless if the students' are attending high school or university, the level of signification is lower when the alternative is university. This might be due to the fact that some students that decide to attend high school will not attend university, or they do not know yet. Therefore, the decision to attend university is more difficult to predict probably because it is a decision that will be taken in two or three years' time and there

is more uncertainty because their decisions depends also on the results that students will obtain during the next two years.

4.2 Public versus private schools

In this section we conduct a robustness analysis procedure aimed at understanding the observed differences between students attending public or semi-public schools. In the previous section we observed that the variable public school was always significant and with a negative sign. This means that students attending public schools showed a lower probability to continue studying. Additionally, the probability that students attending public schools continued their education in a high school was 11% lower compared to students attending semi-public schools (8% if the decision was to enroll to a university).

These results are very interesting because most private schools in the Balearic Islands are publicly financed. That is why we refer to them as semi-public schools. It is expected that if both types of schools are publicly financed, the quality of education and the students' results should not vary between one type of school and the other.

We restrict our analysis to the decision of continuing studying (regardless of the alternative) or dropping-out and we analyze whether there are behavioral differences between students that attend public or semi-public schools.

The first column in Table 8 reproduces the regression included in the first column in Table 7, for comparison purposes only. The second column shows the results for the sub-sample of students registered at public school, while the last column in Table 8 refers to the results obtained at semi-public schools.

It is important to remark that two variables could not be introduced in the regression corresponding to students that attend semi-public schools due to perfect multi-colinearity problems. One of them is "municipality without coastline" because all semi-public schools in the sample were located in Palma[8] (for the same reason, unemployment rates could not be considered in the estimates either). The other variable is "marital status". Unexpectedly, all the interviewed students attending semi-public schools have married or cohabiting parents. This is an interesting result because it denotes a difference in students' family structure, which apparently might affect students' decisions.

When we split the sample distinguishing between public and private schools, we observe that results for students attending public schools are almost identical to those obtained for the whole sample. This is not surprising because this sub-sample accounts for 75% of the students that responded the.

[8] In fact, the main Private Schools in the Balearic Islands are located in Palma.

To what concerns students attending semi-public schools we see that the signification of the coefficients falls dramatically with respect to results shown in Table 7, which might be due to the fact that there are fewer observations, 287, as opposed to 1,375 in the regression concerning public schools. Another explanation to this result might be that the heterogeneity among students' characteristics in the subsample of students' attending semi-public schools is much lower, as statistics in Table 6 suggest. In fact, the variable that refers to parental status (married and stable couples versus divorced or single mothers) indicates that there is no heterogeneity among parents whose children are attending semi-public schools. A similar problem may occur to what concerns the degree of education of the parents. The standard deviation of that variable is much lower for students at semi-public schools in comparison to students attending public schools, which might explain that the coefficient of this variable is not significant when we estimate the regression for those students that attend semi-public schools.

In spite of this fall in signification, two variables remain highly significant. Still, repeating a year is the main factor that reduces students' probability to continue their education. Students that have repeated a year reduce their probability to continue their education by 6.26%. It must be stressed that this decrease in the probability is larger in comparison to students that were attending public schools (5.49%). The second variable that is significant is the students' perception on the quality of the information received by students aimed at helping them decide. While this variable is not significant for students attending public schools, the lack of information is significant and negative for students attending semi-public schools. This means that the decision of the students that attend semi-public schools is influenced by the information they receive concerning their future.

All the other variables considered in our analysis were not significant. In particular, it is important to stress that results suggest that students attending semi-public schools are not influenced by their perception on the relationship between education and income. On the contrary, results show that this relationship plays a significant role on the decisions of the students enrolled at public schools. Therefore, results suggest that there is some kind of evidence that there are differences in the determinants of school drop-out associated to the type of school students are registered.

[Table 8 near here]

4.3 Time preferences

This regression is aimed at analyzing the effect of students' time preferences on their decisions. In Table 9, we show our results concerning the effects of students' time preferences.

In our questionnaire students were asked to choose between two options, studying or dropping-out, each of them associated to a present and a future salary (and there were

different alternatives of present and future salaries). Then, students were classified into four categories according to their responses (see section 2 for a better description of the process that was followed in the questionnaire).

In Table 6 we presented the statistical characteristics of this classification. According to this data 73% of the students seem to be patient (3%) or very patient (70%) and a small 2% seem to be very impatient. Additionally, we observe some differences among students attending public and semipublic schools. While 71.8% of the students that attend public schools are patient o very patient, this percentage is lower compared to students attending semipublic schools (78.1%).

Once we introduce time preferences in our regressions (see results in Table 9) the coefficients are jointly statistically very significant and the explanatory power increases (the Pseudo-R^2 is higher, denoting that the adjustment and the explanatory power increase). In addition to that, we observe that the signification and the sign of the coefficients hardly change. Only the variable that captured students' perception on the relationship between income and education reduces its signification. Still, the sign of the coefficient is the same and those coefficients that were significant without considering students' time preferences remained significant.

As expected, results show that the more patient the students are the higher the probability they decide to continue their education. The probability that patient students attend high school is 14.5% larger with respect to the reference group (if the decision is to attend university the probability is 10.9% larger). Finally, as we observed in Table 7, effects of the variables and the adjustment of the regression are larger when we analyze the alternative of attending high school in comparison to attending university.

[Table 9 near here]

5 Conclusions

Our results confirm those obtained by other authors in Spain that proved the relevance of family background (parent's education, number of siblings, elder siblings who decided to continue their education, etc.) and labor market conditions (parental labor status and unemployment rates) on students' decisions on whether to continue their education or dropping-out.

However, we go one step further and we show that students' perceptions and students' time preferences also matter.

First, we show that information offered to students concerning the educational and professional alternatives they will face after completing their compulsory education is an important variable to be considered.

Second, we find that another relevant variable are students' perceptions on the relationship between income and education. Those students that think this relationship does not exist and those that do not know whether this relationship exists show a lower probability to continue their education.

Third, we show that students' inter-temporal preferences matter. Students that prefer to obtain low present wages as opposed to higher future wages show a lower probability to continue their education.

Fourth, we show that the fact that students repeat at least one year and their perception on the quality of their grades negatively affect their decision to continue their education. Therefore, we observe some kind of self-selection among students. Some of those who think that their grades are not high enough and those who have repeated a course seem to self-discard to continue their education.

Finally, we show that there are significant differences among students attending public or semipublic schools (defined as private schools that are publicly financed). The estimates based on those students attending public schools do no differ from the aggregate results. However, the estimates based on students that attend private schools are rather different. It seems that the number of siblings, the level of education of the progenitors, or the possible relationship between education and income, are variables that do not influence the decisions of the students attending private schools, as opposite to the students attending public schools. Results suggest that students attending private schools are influenced by two variables only, which also affects students attending public schools. On the one hand, as it occurs at public schools, those students that had repeated a year show a lower probability to continue their education. On the other hand, decisions of students attending semi-public schools are influenced by the quality of information they receive concerning the different professional and education alternatives they will face after completing compulsory education.

This result suggests that there are differences among students attending public and semipublic schools and suggests that public and semi-public schools implement different management procedures that influence students' decisions. These differences should be analyzed in future research.

6 References

Acemoglu, D. and J-S. Psichke (2000), "Changes in the wage structure, family income and children0s education". European Economic Review 45(2000), pp. 890-904.

Barsky, R.B, T.F Buster, M.S. Kimball and M.D Shapiro (1997), "Preference Parameters and Behavioural Heterogeneity: an Experimental Approach in the Health and Retirement Study", Quarterly Journal of Economics, vol CXII, pp. 537-580.

Becker, G. and N. Tomes (1986), "Human capital and the rise and fall of families", *Journal of Labor Economics*, 4, pp. 1- 39.

Beneito, P., J. Ferri, M.L. Moltó and E. Uriel (2001), "Determinants of the demand for educationin Spain". *Applied Economics*, 2001, 33, pp. 1541-1551

Cameron, S. and J. Heckman (1998), "Life Cycle schooling and dynamic selection bias: models and evidence for five cohorts of American males", *Journal of Political Economy*, No 106, pp. 262- 332.

Cameron, S. and J. Heckman (1999), "The Dynamics of Educational Attainment for Blacks, Hispanics and Whites", NBER, Working Paper No.W7249.

Card, D. (1999), "The causal effect of education on earnings", in O.C. Ashenfelter and D. Card (eds.) *Handbook of Labor Economics*, Vol. 3A, North-Holland, Amsterdam.

Casquet, E. (2003), "The effect of labor market conditions and family background on educational attainment of Spanish youngsters". ISER Working Paper Series 2003-01, Institute for Social and Economic Research.

Chevalier, A. and G. Lanot (2002), "The Relative Effect of Family Characteristics and Financial Situation on Educational Achievement". *Education Economics* (2002), 10:2, pp. 165-181

Englander, A.S. and A. GURNEY (1994b), "OECD productivity growth: medium-term trends", *OECD Economic Studies*, 22, pp. 111-129.

Ermish, J. and C. Pronzato (2010), "Causal effects of parent's education on children's education". Institute for Social and Economic Research, may 2010.

Hanushek, E.A. and L. Wößmann (2010), "Education and Economic Growth". In: Editors-in-Chief:Penelope Peterson, Eva Baker and Barry McGaw, *International Encyclopedia of Education* (Third Edition). Elsevier, Oxford, 2010, pp. 245-252

Marcenado Guitiérrez, O.D. and M. Navarro Gómez (2001), "Un análisis macroeconómico de la demanda de educación superior en España". *Estudios de Economía Aplicada* nº 19, 2001 pp. 69-86

Martínez-Grada, M. and J Ruiz-Castillo (2002) : “The decisions of Spanish Youth: a cross section study”. Journal of Population Economics 15, pp. 305-330.

Mincer, J. (1974), *Schooling, Experience and Earnings*, Columbia University Press, NY.

Petrongolo, B. and M.J. San Segundo (2002) “Staying-on at school at 16: the impact of labor marketconditions in Spain”. *Economics of Education Review* 21, pp. 353–365

Salas Velasco, M. (2008) *Economía de la Educación*. Ed. Prentice Hall.

Serrano, L. (2003), “Human Capital Externalities: A Sectorial-Regional Application for Spain”, Economic Working Paper at Centro de Estudios Andaluces E2003/06,

Serrano, L. (1998), “Capital Humano y Convergencia Regional”, Working Paper. EC 1998-12, Instituto Valenciano de Investigaciones Económicas.

Self, S. and Grabowski, R. (2004), “Does education at all levels cause growth? India, a case study” *Economics of Education Review* 23, pp. 47–55

Temple, J. (2001), “Growth effects on education and social capital in the OECD countries”. OECD *Economic Studies* No. 33, 2001/II

Temple, J. (2006), “Generalizations that aren’t? Evidence on education and growth”. *European Economic Review*. Reprinted in Belfield, C. (ed.) *Modern classics in the economics of education*, Edward Elgar, 2006.

Table 1: Type of School and number of participants that responded the questionnaire

Type of Schools	**Number of students**
Public	1.396
Semi-Public	393
Private	14
Total	**1,803**

Table 2: Students' Socio-economic characteristics

	%
Year of birth	
1989	0.17
1990	8.76
1991	25.89
1992	65.18
Number of siblings	
0	11.53
1	56.3
2	22.94
3	5.71
4	1.68
5	0.67
6	0.67
7	0.17
>8	0.34
Students with elder brothers	
Yes	50.17
No	49.83
Marital Status	
Married or with stable couple	77.37
Divorced or single parent	20.28
Widow	2.35
Father's level of education	
No-studies	8.13
Primary	35.99
Secondary	35.01
University degree	20.53
others	0.35
Mother's level of education	
No-studies	6.32
Primary	37.73
Secondary	34.66
University degree	20.89
Others	0.4
Father's Labor Status	
Unemployed	1.56
Non-working	0.92
Retired or handicapped	3.00
Working	94.52
Mother's Labor Status	
Unemployed	5.38
Non-working	9.45
Retired or handicapped	1.81
Working	83.36

Table 3.Students's preferences and perceptions

	%
Do you want to continue your education?	
Yes	94.54
No	2.28
Do not know	3.18
Dou you think that education might help you to earn a higher wage rate?	
Yes	78.92
No	7.36
Do not know	13.72
Do you think that the School provides you enough information so as to help you deciding whether to dropout or continue your education?	
Completely agree	14.8
Agree	68.78
Disagree	13.47
Very disagree	2.95
Do you receive enough support from your School so that you know all the possible professional alternatives if you decided to drop-out?	
Sufficient information	14.64
Good information	63.07
Insufficient information	19.66
The information provided is very bad.	2.63

Table 4: Arguments offered by those students that declared they did not want to continue their education

I want to earn money	58.54%
I don't like to study	41.46%
It is not useful	2.44%
None of the studies is appealing to me	12.20%

Note: the addition of all percentages is larger to 100% because students might provide different arguments.

Table 5: If you decided to continue with your education would you be able to go to the university?

Yes	67.46%
No, I must move to the main land and I cannot afford it	3.19%
No, I want to study in B. Islands and I cannot afford it	1.14%
No, my grades are not high enough	11.91%
No, I don't want to move and I cannot study what I like B. Islands	2.51%
I do not know	13.79%

Table 6: Descriptive statistics by type of school

	Total		**Public school**		**Semi-public school**	
variable	mean	sd	Mean	sd	mean	sd
Go on studying	94.0%		93.0%		98.0%	
Going to high school	70.0%		66.0%		83.0%	
Going to the university	61.0%		58.0%		71.0%	
Social environment						
Public school	77.0%		100.0%		0.0%	
Unemployment rate	4.1%	0.0096	3.9%	0.0098	4.9%	0
Municipality without coastline	18.0%		23.0%		0.0%	
Family background						
N. of siblings	1.4	1	1.4	1.1	1.3	0.92
Stable Couple	77.0%		78.0%		74.0%	
Siblings studying	36.0%	0.48	35.0%	0.48	42.0%	0.49
Parents education:						
- None of the parents with studies	33.0%		37.0%		16.0%	
- 1 parent with studies	27.0%		27.0%		27.0%	
- Both parents with studies	40.0%		36.0%		57.0%	
Low grades	11.0%		12.0%		8.0%	
Repeating a year	35.0%		37.0%		28.0%	
Rel. between education and wages						
- Positive relationship	78.6%		79.2%		76.2%	
- No rel.	7.4%		6.8%		9.8%	
- Don't know	14.0%		14.0%		14.0%	
No information on alternatives	16.0%		16.0%		18.0%	
Male	39.0%		39.0%		40.0%	
Time preferences						
Very impatient	2.0%		2.0%		1.8%	
Impatient	12.0%		12.0%		11.0%	
Patient	3.0%		2.8%		4.1%	
Very patient	70.0%		69.0%		74.0%	
No answer	13.0%		14.2%		9.1%	
N. Observations	**1,778**		**1,375**		**389**	

Table 7: Subjective probability of studying after Secondary School, Going to high school and Going to the university

VARIABLES	(1) Go on Studying Coef.	Effect. on Prob.	(2) Go to high school Coef.	Effect. on Prob.	(3) Go to the university Coef.	Effect. on Prob.
Social environment						
Public School	-0.435**	-2.72%	-0.358***	-10.80%	-0.208**	-7.80%
	(0.176)		(0.104)		(0.0873)	
Unemployment rate	1.578	12.10%	12.15***	392.80%	1.949	74.60%
	(5.785)		(3.976)		(3.553)	
Municipality without coastline	0.210	1.43%	0.178*	5.53%	0.0884	3.35%
	(0.148)		(0.0967)		(0.0851)	
Family background						
N. siblings	-0.131***	-1.01%	-0.116***	-3.74%	-0.113***	-4.33%
	(0.0418)		(0.0340)		(0.0316)	
Stable Couple	-0.0801	-0.59%	-0.0137	-0.44%	-0.0603	-2.30%
	(0.127)		(0.0845)		(0.0754)	
Siblings studying	0.172	1.26%	0.173**	5.49%	0.190***	7.21%
	(0.114)		(0.0767)		(0.0677)	
Parents education:						
- 1 parent with studies	0.301**	2.05%	0.147	4.64%	0.143*	5.42%
	(0.134)		(0.0906)		(0.0822)	
- Both parents with studies	0.422***	3.06%	0.422***	13.20%	0.277***	10.50%
	(0.131)		(0.0862)		(0.0767)	
Students' characteristics						
Male	-0.0239	-0.18%	-0.0291	-0.94%	-0.0634	-2.43%
	(0.110)		(0.0735)		(0.0645)	
Low grades	-0.227*	-2.04%	-1.172***	-43.50%	-0.861***	-33.30%
	(0.138)		(0.112)		(0.104)	
Repeating a year	-0.572***	-5.24%	-1.048***	-35.80%	-0.392***	-15.20%
	(0.112)		(0.0747)		(0.0691)	
No information on alternatives	-0.240*	-2.13%	-0.0396	-1.29%	-0.0436	-1.68%
	(0.130)		(0.0966)		(0.0845)	
Rel. between educ. & wages:						
- No rel.	-0.469***	-5.13%	-0.423***	-15.00%	-0.00562	-0.22%
	(0.165)		(0.132)		(0.121)	
- Don't know	-0.373***	-3.66%	-0.291***	-9.99%	-0.236***	-9.19%
	(0.136)		(0.101)		(0.0909)	
Constant	2.339***		0.881***		0.635***	
	(0.361)		(0.237)		(0.211)	
Observations	1,778	1,778	1,778	1,778	1,778	1,778
Pseudo-R^2	0.148	0.148	0.266	0.266	0.0936	0.0936
Log-likelihood	-330.2	-330.2	-798.0	-798.0	-1079	-1079

Notes: standard errors in brackets under the coefficients. * denotes parameter significant at 10%, ** significant at 5%, *** significant at 1% .

Reference groups are: for parents' education "none of the parents has studies higher than secondary school", for relation between education and wage "I believe there is a positive correlation between level of education and wage".

Effect on probability computes the change in the probability due to an infinitesimal change in each independent, continuous variable and reports the discrete change in the probability for dummy variables.

Table 8: Subjective probability of studying after Secondary School in the whole sample, in Private Schools and in Public Schools

	(1)		(2)		(3)	
	Go on Studying		**Go on Studying (Public School)**		**Go on Studying (Semi-Public)**	
VARIABLES	Coef.	Effect. on Prob.	Coef.	Effect. on Prob.	Coef.	Effect. on Prob.
Social environment						
Public School	-0.435**	-2.72%				
	(0.176)					
Unemployment rate	1.578	12.10%	1.916	18.70%		
	(5.785)		(5.834)			
Municipality without coastline	0.210	1.43%	0.200	1.78%		
	(0.148)		(0.147)			
Family background						
N. siblings	-0.131***	-1.01%	-0.145***	-1.41%	0.0441	0.06%
	(0.0418)		(0.0432)		(0.267)	
Stable Couple	-0.0801	-0.59%	0.00678	0.07%		
	(0.127)		(0.132)			
Siblings studying	0.172	1.26%	0.186	1.74%	0.0961	0.12%
	(0.114)		(0.122)		(0.419)	
Parents education:						
- 1 parent with studies	0.301**	2.05%	0.327**	2.84%	0.386	0.39%
	(0.134)		(0.143)		(0.528)	
- Both parents with studies	0.422***	3.06%	0.400***	3.59%	0.709	1.22%
	(0.131)		(0.139)		(0.471)	
Students' characteristics						
Male	-0.0239	-0.18%	-0.0284	-0.28%	0.145	0.18%
	(0.110)		(0.116)		(0.408)	
Low grades	-0.227*	-2.04%	-0.253*	-2.89%	-0.145	-0.22%
	(0.138)		(0.145)		(0.520)	
Repeating a year	-0.572***	-5.24%	-0.498***	-5.49%	-1.508***	-6.26%
	(0.112)		(0.118)		(0.501)	
No information on alternatives	-0.240*	-2.13%	-0.153	-1.63%	-0.931**	-2.77%
	(0.130)		(0.143)		(0.451)	
Rel. between educ. & wages:						
- No rel.	-0.469***	-5.13%	-0.475***	-6.47%	-0.571	-1.36%
	(0.165)		(0.180)		(0.489)	
- Don't know	-0.373***	-3.66%	-0.393***	-4.86%	-0.651	-1.65%
	(0.136)		(0.144)		(0.535)	
Constant	2.339***		1.794***		2.709***	
	(0.361)		(0.288)		(0.650)	
Observations	1,778	1,778	1,375	1,375	287	287
Pseudo-R2	0.148	0.148	0.125	0.125	0.318	0.318
Log-likelihood	-330.2	-330.2	-295.5	-295.5	-27.30	-27.30

Notes: standard errors in brackets under the coefficients. * parameter significant at 10%, ** parameter significant at 5%, *** parameter significant at 1% .

Reference groups are: for parents' education "none of the parents has studies higher than secondary school", for relation between education and wage "I believe there is a positive correlation between level of education and wage".

Effect on probability computes the change in the probability due to an infinitesimal change in each independent, continuous variable and reports the discrete change in the probability for dummy variables.

Table 9: Subjective probability of studying after Secondary School with and without time preferences

	(1)		(2)		(3)	
	Go on Studying		**Go to high school**		**Go to the university**	
VARIABLES	Coef.	Effect. on Prob.	Coef.	Effect. on Prob.	Coef.	Effect. on Prob.
Social environment						
Public School	-0.399**	-2.24%	-0.379***	-11.20%	-0.191**	-7.16%
	(0.182)		(0.108)		(0.0879)	
Unemployment rate	1.297	8.83%	12.74***	405.90%	2.085	79.80%
	(6.041)		(4.068)		(3.564)	
Municipality without coastline	0.138	0.86%	0.123	3.82%	0.0529	2.01%
	(0.154)		(0.0991)		(0.0857)	
Family background						
N. siblings	-0.101**	-0.69%	-0.104***	-3.31%	-0.105***	-4.01%
	(0.0441)		(0.0351)		(0.0321)	
Stable Couple	-0.0287	-0.19%	0.0130	0.42%	-0.0502	-1.91%
	(0.130)		(0.0863)		(0.0757)	
Siblings studying	0.137	0.90%	0.154*	4.84%	0.179***	6.79%
	(0.118)		(0.0787)		(0.0681)	
Parents education:						
- 1 parent with studies	0.276**	1.68%	0.131	4.08%	0.136*	5.16%
	(0.138)		(0.0929)		(0.0826)	
- Both parents with studies	0.406***	2.61%	0.378***	11.70%	0.261***	9.89%
	(0.136)		(0.0886)		(0.0771)	
Students' characteristics						
Male	-0.0201	-0.14%	-0.0128	-0.41%	-0.0586	-2.25%
	(0.113)		(0.0753)		(0.0647)	
Low grades	-0.133	-1.00%	-1.074***	-39.70%	-0.813***	-31.60%
	(0.142)		(0.114)		(0.105)	
Repeating a year	-0.523***	-4.22%	-0.992***	-33.50%	-0.371***	-14.30%
	(0.116)		(0.0770)		(0.0706)	
No information on alternatives	-0.253*	-2.02%	-0.0270	-0.86%	-0.0427	-1.64%
	(0.135)		(0.100)		(0.0850)	
Rel. between educ. & wages **:**						
- No rel.	-0.337*	-3.00%	-0.303**	-10.40%	0.0444	1.69%
	(0.174)		(0.138)		(0.123)	
- Don't know	-0.315**	-2.66%	-0.263**	-8.86%	-0.208**	-8.11%
	(0.141)		(0.104)		(0.0917)	
Intertemporal preference						
Time preference 1	-0.683***	-8.38%	-0.636**	-23.40%	-0.232	-9.10%
(more impatient)	(0.263)		(0.284)		(0.251)	
Time preference 2	0.0404	0.27%	-0.403***	-14.00%	0.0814	3.08%
	(0.173)		(0.137)		(0.127)	
Time preference 3	0.431	2.02%	0.0899	2.78%	0.122	4.60%
	(0.313)		(0.221)		(0.200)	
Time preference 4	0.563***	4.84%	0.433***	14.50%	0.281***	10.90%
(more patient)	(0.144)		(0.104)		(0.0941)	
Constant	1.901***		0.599**		0.389*	
	(0.393)		(0.259)		(0.228)	
Observations	1,778	1,778	1,778	1,778	1,778	1,778
Pseudo-R^2	0.198	0.198	0.302	0.302	0.0997	0.0997
Log-likelihood	-311.1	-311.1	-758.6	-758.6	-1071	-1071

Notes: standard errors in brackets under the coefficients. * parameter significant at 10%, ** parameter significant at 5%, *** parameter significant at 1% .

Reference groups are: i) for parents' education "none of the parents has studies higher than secondary school", ii) for relation between education and wage "I believe there is a positive correlation between level of education and wage" and iii) for time preference "no answer".

Effect on probability computes the change in the probability for an infinitesimal change in each independent, continuous variable and reports the discrete change in the probability for dummy variables.