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Compensation for poor performance through social background in tertiary education choices

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Compensation for poor performance through social background in tertiary education choices

In this paper, we use longitudinal data to examine the compensation effect when young students decide among different tertiary education options. We begin with an analysis of the transition to higher vocational training programmes or university degree programmes. For those choosing the university option, we then analyse the risk (high or low) of degree programme completion. Longitudinal data enables control variables from years before the decision is made, and variables affecting previous compensation processes, to be introduced into the logistic regression model. The results show that the compensation effect has a weak influence when deciding amongst enrolment options for tertiary education.

Keywords: Compensation effect; compensatory advantage; risk of completion; degree programmes; higher vocational training programmes; transition to tertiary education; transition to higher education

Introduction

Compensation effects are actions that families can undertake to compensate for perceived flaws their children may present that carry a potential risk of failure. They appear in different circumstances, the most relevant of which in terms of educational pathways may be poor performance while studying and the choice of educational transitions, including transition to the labour market (Bernardi and Cebolla, 2014).

Regarding analysing the transition to university, it is especially important to consider the traditional separation between what are known as primary and secondary effects, as popularised by Boudon in the American version of "L'inegalité des chances" (Boudon, 1973). Primary effects explain how families invest resources in acquiring academic skills, giving their children an advantage to achieve higher educational performance. Secondary effects are concerned with how occupying different positions

on the social scale directly affects educational decisions at every crossroad of the education system.

There is a considerable amount of research showing that students from different social backgrounds make different educational decisions, even if their academic performance is much the same (e.g. Boone and Van Houtte, 2013; McCoy and Byrne, 2011; Murdoch, Kamanzi, and Doray, 2011; Sianou-Kyrgiou and Tsiplakides, 2011). This kind of inequality tends to persist to some extent, despite its changing pattern as a consequence of the educational expansion that most countries have experienced over recent decades (e.g. Bernardi and Ballarino, 2016; Boliver, 2011).

From Bourdieu and Passeron's (1977) perspective, these differences can be explained by the inherent tendency of each social class to make decisions that depend on its dominant habitus. According to the model of educational transitions established by Breen and Goldthorpe (1997), which follows Boudon, they can be understood in terms of the incentives of every class to avoid social demotion. When translating this approach into empirical terms, some authors have focused on the fact that students from low social origins —even if they have previously obtained good marks— might prefer to enrol on more modest, less risky educational tracks, which provide enough occupational return for them to attain at least the same social position as their parents. This is known as the diversion thesis (Becker and Hecken, 2009; Byrne, 2009; Hillmert and Jacob, 2003; Muller and Maclehose, 2014; Schindler and Lörz, 2012).

More recently, a complementary approach has been developed to explain such decisions. Using the concept of the compensation effect (or compensatory advantage), this approach focuses on the behaviour of the middle and upper classes, which might overcompensate for nearly every risk of failure signalled by their children’s previous performance.

One possible harmonisation of these two perspectives is to revisit the idea of the existence of a threshold for such families, above which the poor marks obtained by their children make the risk of enrolling in an educational programme that is difficult to complete too severe. The higher the social class, the higher the threshold, such that only a very clear state of underachievement would prevent parents from the highest social classes from encouraging their offspring down a difficult path, or, in the very words of Erikson and Jonsson (1996), "They will give up only when persuaded by a clearly demonstrated lack of ability or interest on the part of their children". Thus, our analysis considers the interaction between social background and previous performance.

This paper focuses on relevant educational choices in tertiary education after completing academic high school. In Spain, this means deciding between enrolling in a higher vocational training programme or a university programme, and in terms of the latter, between more or less risky university degree programmes.

The compensation effect

The compensation effect can occur as a primary or a secondary effect. As an example of a primary effect, families may use their cultural or financial resources to compensate for their child's failure at secondary school. Bernardi (2014) reviews the research, concluding that most educated parents tend to compensate for, rather than reinforce, their offspring's cognitive weaknesses. Even if the results obtained do not improve once this investment has been made, this compensation can positively affect self-perception. Torrents (2016), in a study of secondary school students, shows how the objective marks obtained and the subjective perception of them do not always match: students with a higher social background tend to have a better perception of their performance than the reality. Becker and Hecken (2009) point to the importance not only of previous performances, but also of the subjective evaluation of that performance to explain

decisions taken when enrolling in tertiary education. These compensations - the improvement of marks, or the perception the student has of them - occur in the primary effects level, and they are not the object of analysis in this paper. Instead, they are used as control variables to examine the compensation effect when acting as a secondary effect; that is, when the tertiary education decision process takes place.

An important point relating to the diversion model is the possibility that students from lower social backgrounds with good school performance might be blind to the opportunity of an academic pathway, and instead only consider the option of vocational training (and so they would be diverted onto this track). Conversely, the compensation effect model stresses the action undertaken by higher socioeconomic status families when their children achieve lower marks (Bernardi and Cebolla, 2014). Thus, more room is left for the choice of enrolling in more difficult completion tracks for those from lower social backgrounds, especially if they have obtained good marks.

The model also allows for the simultaneous action of the information effect, whereby students with middle marks are not well informed about their performance and need more information than others about how demanding their possible future studies will be, most importantly to know if they will be able to respond to the academic challenges involved. This effect predicts that students from different social backgrounds will count on varying amounts and qualities of information, which will give them differing numbers of opportunities. Hence, we expect that fewer students from lower social backgrounds will enrol in university programmes than those from higher social backgrounds.

However, via a series of experiments Abbiati and his colleagues (Abbiati, Argentin, Barone, and Schizzerotto, 2017) have shown that the information effect is less relevant at the highest stage of the educational system. They also found that while some

students from low social backgrounds changed their decision from entering the labour market to enrolling in higher vocational training programmes after having been well informed about the relevant study requirements and opportunities, others followed the opposite path, also choosing to enter a higher vocational training programme instead of pursuing their original intention of enrolling at university.

Such results lead us to focus on the compensation effect. As with the information effect, the clue here is to consider the interaction between the two variables social background and performance. Indeed, the main hypothesis is that depending on the social background of the student, for every level of academic performance a different path will be taken.[1]

The indicator used in this paper for student performance is a constructed variable based on their performance in the first three years of the four-year longitudinal survey on which our data is based. These three years correspond to the last year of compulsory secondary education and the two years of upper secondary school, immediately prior to the year they could embark on the first year of a university or a higher vocational training programme. The selected indicator for social background is the highest educational level attained by their parent(s).

The risk associated with the educational options

The EMI (Effectively Maintained Inequality) hypothesis was first formulated to meet the need to take a new look at inequalities in education, considering not only differences in completing the stages of education, but also the inequality in the different educational

[1]The search for a specific behaviour associated with a particular socioeconomic group may be similar to that required to test the Effectively Maintained Inequality (EMI) hypothesis; however, in our case, it is not expected that an inverted tendency for the two opposed extreme groups will be found, as suggested by (Lucas, 2017; Lucas and Byrne, 2017; Vilalta-Bufí, 2018).

options at each stage (Lucas, 2001). Since then, the focus has been on the qualitative differences between educational options. Some academic tracks are of different durations, while qualifications of the same duration may have an unequal social status. The most valued options are usually the most selective ones, both in terms of accessing the course and progression through it, and they are also generally those that provide access to the most rewarding professional careers (Triventi, 2013).

Due to the educational expansion, the global value of educational degrees has declined, which, in turn, has produced diploma inflation, as explained by the credentialist theory (Collins, 1979). In this situation, the higher classes might find it harder to gain a quantitative advantage through education; thus, in order to preserve their better position they have to compete for a place in the following stage and be aware of qualitative differences.

Much research has been devoted to the diversion of students onto different institutionalised tracks. For instance, there are studies about the choice of vocational tracks in tertiary education[2] (e.g. Becker and Hecken, 2009; Hillmert and Jacob, 2003; Reimer and Pollak, 2005); there are surveys about student channelling to community colleges in the States (Deil-amen and Lopez Turley, 2007); and there are studies on other kinds of diversification among tertiary education (e.g. Iannelli, Gamoran, and Paterson, 2011; Triventi, 2013). Furthermore, there has been research that considers the more subtle inequalities inside the higher educational level, commenting on the importance of horizontal stratification. There is the classic British topic of the hierarchy of higher education institutions based on their prestige (e.g. Raffe and Croxford, 2015; Reay, Crozier, and Clayton, 2010) —which is also considered in other countries

[2]Studying vocational tracks in the tertiary educational level has been possible in Spain since the 1990s.

(Tavares and Ferreira, 2012; Triventi, 2013). Contrarily, we also find examinations of the differences between degree programmes or fields of study (e.g. Callender and Jackson, 2008; Iannelli, Gamoran, and Paterson, 2018; Kim, Tamborini, and Sakamoto, 2015; Munk and Thomsen, 2018; Reimer and Pollak, 2005; Tavares and Cardoso, 2013; Triventi, 2013; Tsiplakides, 2018; Werfhorst, Sullivan, and Cheung, 2003).

These approaches show that there is some international agreement about which degree programmes are regarded as of high and low status. For example, it is commonplace to refer to the high status of medicine and the low social value of the humanities or the soft social sciences. However, divergences are also frequent among countries. From a Spanish perspective, it seems rather odd that in some countries law is a well-recognised high status degree and engineering is a medium or low status degree, because in Spain this is not the case.

From here emerges the challenge of objectifying the classification criteria for university degree programmes. Our proposal takes as the central concept the notion of risk, understood as the possibility of being exposed to negative consequences (Deil-Amen and Goldrick-Rab, 2009). In terms of degree programmes, these might be, for example, the impossibility of working while studying, not obtaining the desired job or other expected rewards upon completing the programme, not fitting into the social peer group, etc. Nonetheless, for our purposes and according to data availability, the concept of risk we choose is linked to the possibility of not completing the degree programme. As will be further explained later, risk for every degree programme is included in the definition of completion risk: number of years of study[3], dual degree programme, degree programme in English, and weighted performance rate.

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[3] In Spain, the European Higher Education Area (EHEA) Reform, which has been implementing the Bologna Declaration since 2008, has effected the organisation of degree programmes into a minimum of four years of study. Nowadays, in the Catalan university system, there are the following degree

The hypotheses of this work are established as follows:

H1: When students with a higher level family educational background have had previous poor academic performance, they tend to enrol at universities proportionally more than students with lower family educational background (compensation effect).

H2: When students with a higher level family educational background have had previous poor academic performance, they tend to enrol proportionally more in higher risk (of completion) degree programmes than students with a lower family educational background (compensation effect).

Methodology

The model of analysis

The analysis uses a binary logistic regression model for every dichotomous choice: university versus higher vocational training, and high risk versus low risk degree programmes. Even if these choices are made at the same stage of the educational career, we conceive the choice as a conditional one because the type of degree programme is embedded in the university option, once the track has been chosen.

The translation of the compensation effect into a model of analysis is explained by Bernardi (2014) as the introduction of an interaction term into the (linear, in his case) equation. As we are interested in the compensation that the educational level of the family produces in the previous performance of their children, we must introduce the interaction term performance by family level educational background into the educational transition decision —that is, Boudon's classic formulation of secondary effects.

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programmes: 83.5% four years, 3.5% five years, 11.4% six years, and 1.7% seven years (all of which are dual degree programmes).

In short, model 1 is represented by the equation:[4]

$$ln\left(\frac{P_{HE}}{1-P_{HE}}\right) = \alpha + \beta_1\, Perf + \beta_2\, EdBck + \delta_1 Ctrl_1 + \cdots + \delta_n Ctrl_n$$

And model 2, with the aforementioned interactions:

$$ln\left(\frac{P_{HE}}{1-P_{HE}}\right) = \alpha + \beta_1\, Perf + \beta_2\, EdBck + \beta_3 Perf \cdot EdBck + \delta_1 Ctrl_1 + \cdots + \delta_n Ctrl_n$$

There are some problems derived from these kinds of models. The first is the existence of unobserved heterogeneity, the consequences of which are the underestimation of the coefficients of the terms included in the analysis, and the problems this raises when comparing the odds obtained (Mood, 2010). The second is the presence of sources of endogeneity, either due to the nature of the variable itself, or because of the possible anticipated decisions taken by individuals. Thus, there might be a simultaneous influence on the result at the same time as they influences another term in the equation (overestimating that term) (Bernardi, 2014).

One way to address such problems is to include a selection of control variables into the model, even if they show a weak influence in the multivariate analysis. Especially important is the inclusion of variables related to the initial phases of the school pathways, which only occurs when working with longitudinal data (Bernardi, 2014; Pfeffer and Goldrick-Rab, 2011). A set of variables linked to possible (anticipated) decisions at the beginning of the post-compulsory educational choices phase are used, which affect the individual academic expectations, and the self-

[4] HE: transition to higher education; Perf: school performance during the years prior to the transition moment; EdBck: family level of education (family educational background); Ctrl: any control variable included in the model.

perception of performance. We also include variables concerning economic capital, social capital (family and teachers), and characteristics of the school attended. The main variable, 'performance', is constructed by taking the marks obtained during the three years subsequent to our survey.[5]

The measure of risk

As indicated previously, the objective of this section is to define a measure of risk to provide a tool to distinguish university degree programmes. The resulting risk is the risk of non-completion, when instead of a trade-off, studying a degree becomes a lost investment. To this effect, being enrolled on a degree programme and dropping out after some time entails a loss of time, money, and effort, and there is probably also a psychological cost derived from a sense of failure. Therefore, we can say that the "non-completion" state represents a real risk experienced by those who choose a particular degree programme.

The main components of the risk of non-completion are linked among them. The time dimension refers to the number of academic years the programme has been designed for and, thus, the period in which it is expected to be completed. In the Spanish university system, all degrees take at least four years, and some take up to six years (seven for dual degree programmes).

Unlike other European countries, Spain has disparate tuition fees for different degree programmes. Indeed, the prices vary depending on the "experimental degree" assigned by the government to the programme. In addition to this direct cost, the opportunity cost must also be considered. This may be the wages the student would

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[5] Every subsequent year, we asked for the marks obtained the previous year. 'Very good student' is when the student always obtained very good marks (9 or 10 over 10 points); 'Good student' is when they obtained middle marks in at least one year (6, 7, or 8 over 10 points); and 'Student sometimes failing' is when they failed, just passed, or retook some subjects in at least one year.

have earned if they had been employed in the labour market instead of devoting their time to studying. Of course, the longer the degree programme, the higher the opportunity cost; therefore, we have the first relation between the risk components.

Last, the difficulty component must be considered. Although this dimension might be difficult to grasp, we all have a notion that some bodies of knowledge are harder to acquire than others; thus, some degrees have a lower success rate than others. The difficulty of a given programme implies a particular amount of effort invested by the individual, but this is not the only implication. First, the difficulty of the degree could slow the pace at which the student passes the various subjects, thus leading to a student-determined delay in the completion of the programme. Second, a difficult degree would leave less room to work whilst studying, thus avoiding the possibility of lessening the opportunity cost. The third factor is related to institutional norms. In Spain, failing a subject has further consequences. A student who fails a subject must retake it, paying the fee for the subject again at double the initial cost. If the student must retake the subject a third time, the cost compared to the original fee now triples.[6] Furthermore, as grants are linked to a student's performance, failing could mean the loss of their financial assistance. The difficulty of a given degree programme relates to the direct costs of that programme in the above ways.[7]

Our approach is to measure the risk based on indicators of duration and difficulty. As shown in Figure 1, a lexicographical order is followed. Consequently, a high risk degree programme would comply with one of the following characteristics: it

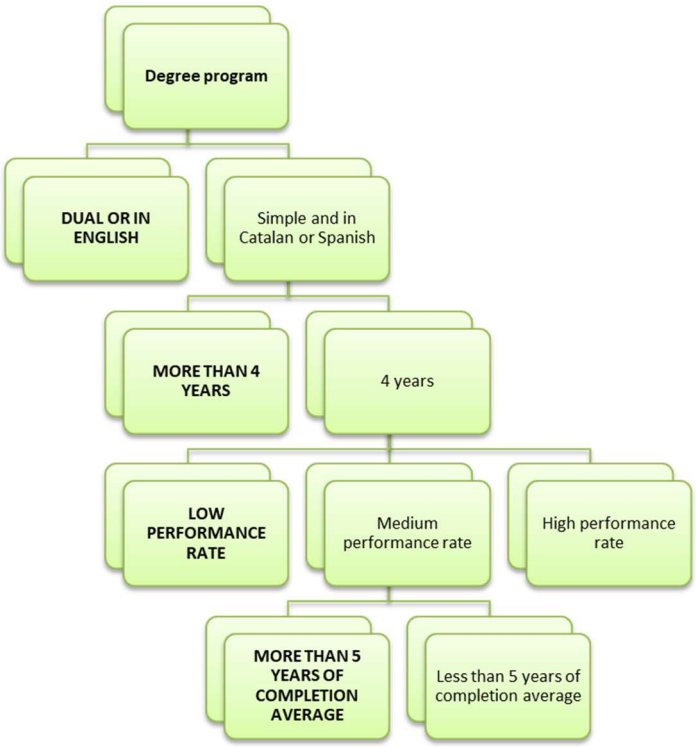
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[6] Hence, if the student fails a subject that cost €200, the fee for the retake is €400 – meaning that the student will end up paying a total of €600. If the student has to take it a third time the fee escalates to €600 – meaning the student ends up paying €1,200 for the three attempts.

[7] A University System Observatory (Sacristán and França, 2013) study calculates the total cost of degrees in Catalonia after the huge increase of 2012. The study evidences how, due to the specific way of organising the fees, the total cost becomes tightly linked to the difficulty in passing the subjects. This is why we include the low performance rate as an important indicator in our operationalisation of risk.

is a dual degree programme or it is taught in English; it is institutionally organised over a period of more than four years; it has a low performance rate (credits passed over credits taken); or it takes more than an average of five years to complete.

Figure 1. Definition of risky degree programmes. Bold and capital letters: degree programmes with high risk of completion.



Data and Sample

This paper is based on data obtained from a longitudinal study, with a sample of 2,056 students from 27 schools in the city of Barcelona in their last year of compulsory education (tenth grade) in 2013-14.The participants were surveyed every year until 2017. The data is part of the International Study of City Youth and the sample was representative of the type of school (public-private) and social background of schools in Barcelona. The sample attrition was corrected by the Inverse Probability Weighting (IPW) method.

The analysis in this article was based on the two populations that went on to further study in the formal education system after obtaining their upper secondary school diploma in 2016. As a consequence, the people (5%) who did not opt for an educational transition and, thus, would not have continued studying via any formal pathway during the academic year 2016-17, were discarded.

Results

The first concern of this paper is the transition of the students going from upper secondary education into either a university degree programme or a higher vocational training programme. The descriptive data of this transition is shown in Table 1.

Table 1. Transition to university degree programmes (vs. higher vocational training programmes). Percentages. N = 991.

Variable	**Category**	**Percentage of access to university**
Marks during secondary school	Very good student	95.5
	Good student	81.6
	Student sometimes failing	60.4
Family Level of Education	Non-University	66.4
	University	93.5
Sex	Men	84.6
	Women	79.6
Economic stress	Without economic difficulties	83.5
	With economic difficulties	72.4
Teachers' consideration	One of the best students	91.6
	Over the average of my class	88.6
	On the average of my class	71.6
	A student who doesn't performs well	87.1
Academic self-perception	Low performance	71.5
	High performance	86.2
	Don't Know/Don't answer	82.6
Expectations at tenth grade	Upper secondary school and university	85.7
	Upper secondary school and high vocational training	39.7
	Other	72.4
School social background	Low social	61.4
	Middle social	81.7
	High social	94.7

Type of school	Public	66
	Private	86.9

°p<0.10 *p<0.05, **p<0.01, ***p<0.001

The university track is chosen more often than the vocational training one. Tertiary education vocational training was implemented in Spain during the 1990s but has not been accepted as an alternative to university education. When a student has a very good performance record, it is noteworthy that they almost never contemplate the option of choosing a vocational training path.

Women are slightly less prone than men to choose to access university level education once they have upper secondary credentials. It must be remembered, however, that this is the internal proportion of each group. Since there are more women in the upper secondary track, they in fact outnumber then men when accessing higher education. Nevertheless, it would seem that when men are able to complete the post-compulsory secondary school stage, their intention is to follow the path to university.

It is interesting to note the importance of the school the students attended in the tenth grade. Social composition and proneness to different paths might be the actual mechanisms at play in sending such different proportions of students to university; either way, these variables demonstrate their relevance to be included as control variables in the model. The multivariate analysis of these same variables in the transition to tertiary education is shown in Table 2.

Table 2. Logistic Binary Regression for transition to university degree programmes (vs. higher vocational training programmes).

	Model 1			**Model 2**		
	B	Standard Error	Exp(B)	B	Standard Error	Exp(B)
Marks during secondary school (Ref: Student sometimes failing)						
Very good student	3.214***	.445	24.875	4.295***	.923	73.318
Good student	1.607***	.264	4.989	1.750***	.420	5.756
Family Level of Education (Ref: University)	-1.403***	.248	.246	-1.150**	.370	.317

Sex (Ref: Women)	.409°	.244	1.505	.441°	.245	1.555
Economic stress (Ref: stress)	.282	.265	1.325	.308	.265	1.361
Teachers' consideration (Ref: bad performance)						
Among the best	-1.912*	.760	.148	-1.995**	.767	.136
Over average	-1.431*	.666	.239	-1.381*	.667	.251
On the average	-1.299*	.616	.273	-1.279*	.615	.278
Academic self-perception (Ref: DK/DA)						
Low performance	.231	.472	1.260	.301	.475	1.351
High performance	.515	.464	1.674	.590	.473	1.803
Expectations at tenth grade (Ref: Other)						
Upper secondary school and university	.853*	.385	2.346	.856*	.385	2.354
Upper secondary school and High vocational training	-1.409**	.493	.244	-1.446**	.499	.236
School social background (Ref: High social)						
Low social	-2.710***	.498	.067	-2.720***	.499	.066
Middle social	-1.545***	.407	.213	-1.591***	.408	.204
Type of school (Ref: private)	-1.113***	.231	.329	-1.085***	.231	.338
Very good student BY Non-University				-1.396	.958	.248
Good student BY Non-University				-.239	.517	.787
Intercept	2.839**	.904	17.097	2.588**	.941	13.302
R2Nagelkerke		.478			.481	
BIC		733.8			745.5	
AIC Akaike		654.2			656.0	
N Total		991			991	

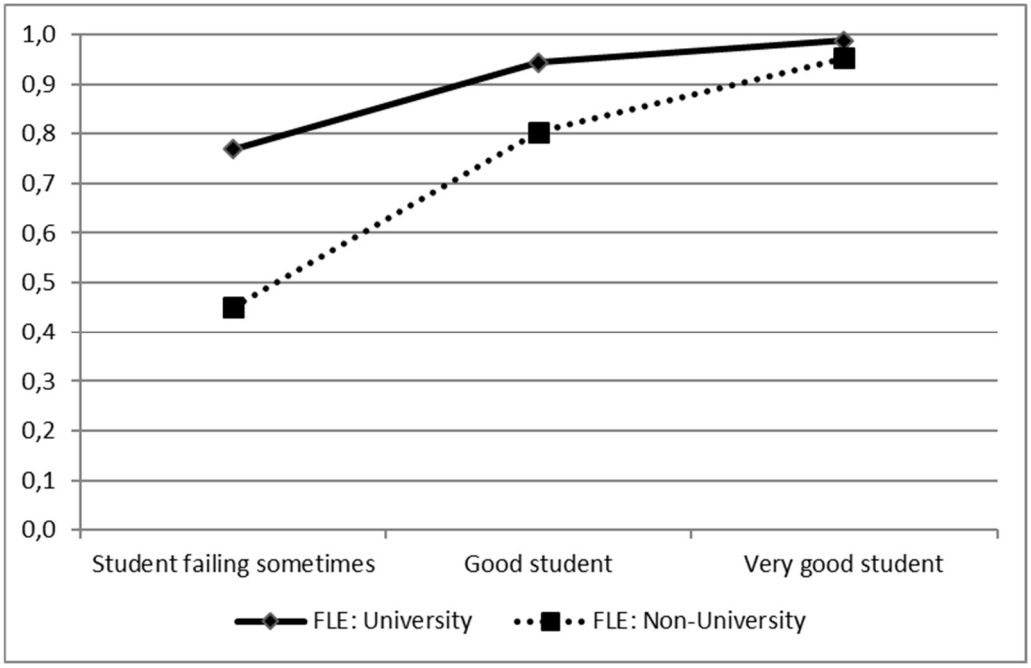
°p<0.10 *p<0.05, **p<0.01, ***p<0.001

Both models in Table 2 confirm the enormous importance of the student's previous performance when deciding upon their transition after upper secondary school. The major influence of family level educational background, the school attended, and the student's expectations, followed by the variable of sex, can also be seen.

From Model 1 to Model 2, which introduces the interaction between previous performance and family level educational background, there is no observable improvement in terms of the goodness of fit. There is the same percentage of the explained variance as the R^2Nagelkerke, which has nearly the same value in both models. Both BIC and AIC are incremented from Model 1 to Model 2, thus indicating the worsening fit in the model.

With the coefficients obtained in Model 1, the probability of transition to a university degree programme for the six groups of interest in the analysis is calculated. The results are shown in Figure 2.

Figure 2. Predicted probabilities of enrolling in a university degree programme by Marks during Secondary School and Family Level of Education (FLE).



Note: Predicted probabilities for 'Marks during secondary school' and 'Family level of education', holding the rest of variables at their mean and without including the interactive term in the equation (Model 1 from Table 2); authors' own calculation.

Figure 2 shows that there is an interaction between the two variables, following the hypothesised trend of the compensation effect. That is, if their parents hold university degrees, low performers enrol in university programmes more than those whose parents do not have that educational level. Thus, the slope of the line of students with non-university level educated parents is steeper since they are more dependent on their previously obtained performance. However, the size of the main effects (i.e. of the main variable and the conditioning variable) is larger than that of the interactive effects,

and thus does not achieve a statistical significance in the multivariate analysis (León and Montero, 2001).[8]

Once the students with an upper secondary diploma have decided to enrol at university, we focus on the kind of degree programme they choose. As explained previously, the category constructed to classify degrees is the level of risk they entail. Table 3 shows the descriptive data for choosing a high risk degree programme.

Table 3. Choice of high risk degree programmes (vs. low risk degree programmes). Percentages. N = 819.

Variable	**Category**	**Percentage of access to high risk degree programmes**
Marks during secondary school	Very good student	56.2
	Good student	34.8
	Student sometimes failing	33.9
Family Level of Education	Non-university	36.5
	University	45.8
Sex	Men	57.5
	Women	31.2
Economic stress	Without economic difficulties	42.2
	With economic difficulties	46.0
Teachers' consideration	One of the best students	64.3
	Over the average of my class	47.0
	On the average of my class	28.6
	A student who doesn't performs well	42.3
Academic self-perception	Low performance	33.8
	High performance	46.8
	Don't Know/Don't answer	38
Expectations at tenth grade	Upper secondary school and university	44.5
	Upper secondary school and high vocational training	22.2
	Other	31.0
School social background	Low social	33.3
	Middle social	43.6
	High social	43.9

[8] The EMI hypothesis requires that *lines cross each other* to be confirmed (Vilalta-Bufí, 2018); in other words, that the interactive effect is larger than the combined effect of the main and the conditioning variables.

Type of school	Public	41.0
	Private	43.2

The high risk degree programme option is much less popular than the low risk one. The descriptive data points, once again, to the relevance of academic performance, expectations, and educational background. Again, we see how men who obtain the upper secondary school diploma (fewer, compared to the number of women) are more likely to select a high risk university degree.

Regarding the multivariate analysis represented in Table 4, it can be seen how most of the variables lose their influence when compared with the previous analysis of the transition to university. Indeed, the explained variance is now much less than in the first case (about 22%, as indicated by the R^2Nagelkerke).

Table 4. Logistic Binary Regression for choice of high risk degree programmes (vs. low risk degree programmes).

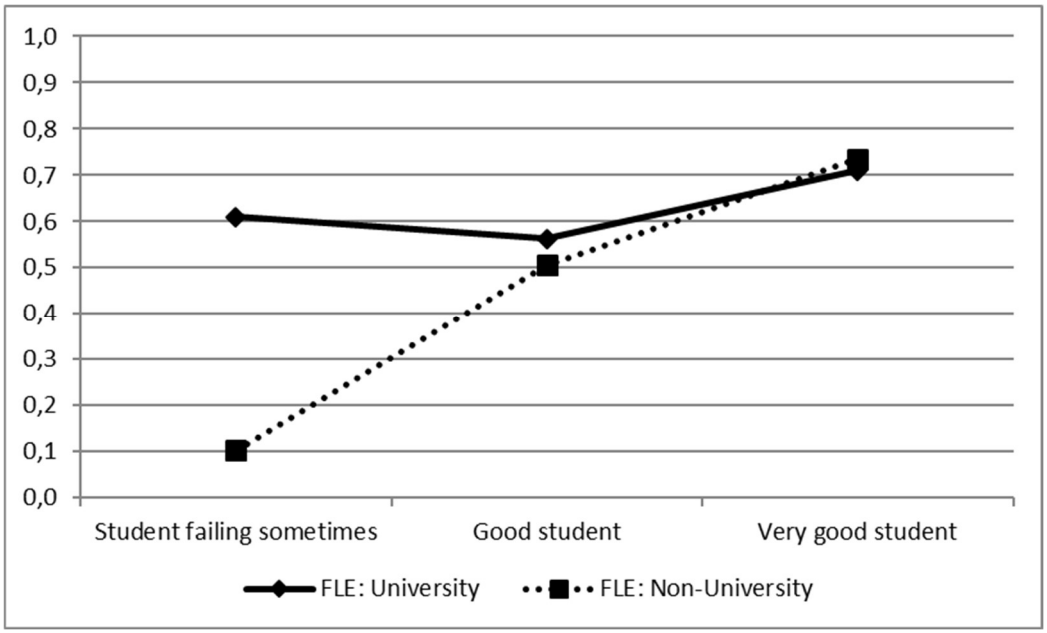
	Model 1			**Model 2**		
	B	Standard Error	Exp(B)	B	Standard Error	Exp(B)
Marks during secondary school (Ref: Student sometimes failing)						
Very good student	.815**	.297	2.260	.643º	.336	1.902
Good student	.153	.248	1.165	-.198	.295	.821
Family Level of Education (Ref: University)	-.130	.182	.878	-.903º	.496	.405
Sex (Ref: Women)	1.298***	.171	3.662	1.283***	.171	3.606
Economic stress (Ref: stress)	-.339	.227	.712	-.324	.228	.723
Teachers' consideration (Ref: bad performance)						
Among the best	.793	.516	2.211	.745	.524	2.106
Over average	.306	.478	1.359	.262	.489	1.299
On the average	-.220	.447	.803	-.294	.458	.745
Academic self-perception (Ref: DK/DA)						
Low performance	.548	.375	1.730	.484	.384	1.622
High performance	.505	.331	1.657	.396	.340	1.485
Expectations at tenth grade (Ref: Other)						
Upper secondary school and university	.744º	.403	2.104	.801*	.407	2.228
Upper secondary school and High vocational training	.055	.645	1.056	.107	.649	1.113
School social background (Ref: High social)						
Low social	-.411	.347	.663	-.390	.348	.677
Middle social	.068	.200	1.071	.087	.201	1.091

Type of school (Ref: private)	.204	.210	1.226	.181	.211	1.199
Very good student BY Non-University				.630	.561	1.878
Good student BY Non-University				1.153*	.556	3.168
Intercept	-2.353**	.720	.095	-2.063**	.753	.127
R2Nagelkerke		.215			.223	
BIC		1161.4			1169.7	
AIC Akaike		1084.9			1084.4	
N Total		810			810	

°p<0.10 *p<0.05, **p<0.01, ***p<0.001

As already hinted by the descriptive data, sex is the most influential variable to explain the acceptance of risk when choosing a degree programme. From a distance, previous performance also plays an important role. On this occasion, the interaction being exploring seemed to work to some degree in statistical terms. Even if the BIC indicator grew between Model 1 and Model 2, the explained variance increased slightly and the AIC presented a tiny reduction. Further analysis showed that the interaction works specifically for men (see appendix), and so these are the predicted probabilities projected in Figure 3.

Figure 3. Predicted probabilities of male students choosing a high risk degree programme by Marks during Secondary School and Family Level of Education (FLE).



Note: Sample restricted to men who have obtained the upper secondary school diploma. Predicted probabilities for 'Marks during secondary school' and 'Family level of education', holding the rest of the variables at their mean and including the interactive term in the equation; author's own calculation.

In the case of men, an interaction can be seen in terms of the predicted trend. Hence, among the students who do not perform very well, those with parents holding a university diploma experience a compensation effect, the result of which is that they are more likely to choose a high risk degree programme. A more detailed analysis of the types of degree programmes in which adherents to the aforementioned criteria enrol (namely, students with a record of poor academic performance and parents with a university degree), revealed that the compensation effect is concentrated in the area of engineering, including both new subjects such as computer sciences and telecommunications, and classic ones such as industrial and mechanical engineering. The data we are working with does not extend far enough for us to know if the compensation effect is durable, ensuring the persistence of such students in an academically difficult environment.

Conclusion

In this paper, an analysis of the compensation effect when students choose amongst tertiary education enrolment options is carried out. This analysis is addressed through searching for an interaction between previous performance and family level educational background variables. Thus, it was assumed that previous compensation processes may might have already occurred.

The hypothesis concerning how the compensation effect would work predicted that among less well performing students, those with parents holding a university degree would compensate, the consequence of which would be that they would enrol on university degrees (rather than in higher vocational training programmes) and high risk degree programmes (rather than in low risk ones).

After analysing the data, the conclusion is that neither of the two null hypotheses can clearly be rejected, at least with the statistical tools we used.[9] For the first hypothesis, the interaction effect was found to not be as important as the mean effects. For the second one, the interaction appears to be small and only affects men. In short, subtle signs were found that a weak compensation effect might be in place when choosing amongst tertiary education options, while also controlling the variables that could have played a role in previous compensation processes (i.e. academic self-perception, previous expectations, and school attended).

Regarding the other related theories, the distance between those with a very good previous performance was seen to be nearly non-existent; thus, their family level educational background does not seem to exert an important influence on their decisions. This contradicts —if only partially— the general statement of the diversion thesis, as well as the notion of habitus affecting decisions in a subconscious way. Neither was any support found for the information hypothesis, since the middle performers did not show the maximum distance depending on their family level educational background, which would reflect the maximum uncertainty of their decisions. Thus, again, we must conclude that, even if only weakly, the compensation effect is the only one to be seen in this data.

In more substantial terms, it was interesting to note that the compensation effect as a means of diverting students to high risk degree programmes occurs among male low performers with university-qualified parents, and that they often choose an engineering degree. Since a tendency among this group to enrol in management and

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[9]Some authors speak about the possibility of applying a linear regression with a dichotomous dependent variable (Bernardi and Cebolla, 2014); in our case, if a linear regression (instead of a logistic regression) is applied as an additional robustness check, some of the expected interactions of the model appear to show their statistical significance. See appendix.

business degrees (which, however, are low risk) can also be seen, a new hypothesis emerges from these findings. Is this tendency to choose degrees directed at private enterprises telling us something about the parents' economic position and, thus, the way in which they think about social reproduction?

If this were the case, and a particular social reproduction strategy is taking place among this population, then this would be of high interest for both political and scientific reasons. Hence, we believe it deserves special attention in further research. First, the social composition of the high risk university degrees needs to be tested with more extensive data, just to check if, as hinted at in our analysis, the offspring of company owners with poor performance are over-represented in comparison to other social groups.

Second, the difficulties we found in identifying clear interactions between the variables can be overcome by using data that enable linear regression models and other modelisation approaches to be employed in the future. Future analyses should especially include family income indicators because the final cost of degrees has been shown to be a key factor in the decisions students make. Furthermore, future research in this line would enable us to capture the importance of the economic context and the job market situation in different moments and places.

Third, different social classes construct representations of what a suitable lifestyle and a network of relations that are worthwhile are. This image of what a desirable future is seems to be much more defined among families with a middle or high social background, and possibly more markedly so for the boys than for the girls, which would explain the greater probability of the sons of university educated parents with poor performance choosing high risk degrees. On the other hand, families with a lower social background let their offspring have a much freer reign when choosing what to

study (Villar, 2017), such that their decisions would then depend more on other factors such as the marks obtained, which would give them a clear idea about how to avoid risk (Langa, Torrents and Troiano, 2019). We believe that a qualitative approach to why these young people take options that involve different degrees of academic risk would be interesting to understand the rationale behind the social reproduction strategy, while testing these new hypotheses.

Inequality plays within the meritocratic rules through primary effects in an indirect way; however, it goes beyond this, challenging meritocracy through secondary effects (Erikson, 2016). This is what the compensation effect brings to light. However, it is extremely difficult to establish what should be done. The analysis carried out in this research does not provide enough information to address the issue. Perhaps the most important question is that this research does not produce results about the actual completion of the studies in which the students enrolled. Continuation of the longitudinal study for more years to include data on whether the students completed their degrees would fill this information gap. Knowledge of real completion probabilities would help both students to make realistic decisions about the appropriate choice of pathway, and counsellors at upper secondary levels to give advice with more awareness of students' real chances of success.

Academic authorities would also benefit from this information when deciding if it is worth reducing the risk of taking difficult degree programmes for those from non-university family backgrounds to promote their enrolment. As defined here, risk will always be inherent to more difficult programmes, and a higher probability of dropping out or of devoting more years to completing the programmes are consequences of that higher risk. Nevertheless, it must be remembered that in the Spanish case, failure is linked to increasing the cost of fees and losing grants. These ways of externally

increasing the risk of some specific university degree programmes could thus be re-assessed.

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Appendix

Table 5. Logistic Binary Regression for choice of high risk degree programmes (vs. low risk degree programmes). By sex.

	Men			Women		
	B	Standard Error	Exp(B)	B	Standard Error	Exp(B)
Marks during secondary school (Ref: Student sometimes failing)						
Very good student	.452	.463	1.572	.894	.559	2.446
Good student	-.194	.381	.824	-.219	.543	.803
Family Level of Education (Ref: University)	-2.615*	.890	.073	.222	.689	1.249
Economic stress (Ref: stress)	-.369	.385	.691	-.393	.302	.675
Teachers' consideration (Ref: bad performance)						
Among the best	.367	.724	1.443	1.029	.999	2.798
Over average	-.032	.652	.968	.665	.969	1.944
On the average	-.458	.585	.632	.056	.941	1.057
Academic self-perception (Ref: DK/DA)						
Low performance	.154	.571	1.166	.500	.584	1.648
High performance	.001	.539	1.001	.550	.487	1.733
Expectations at tenth grade (Ref: Other)						
Upper secondary school and university	1.130°	.576	3.097	.245	.550	1.277
Upper secondary school and High vocational training	-.926	1.080	.396	.487	.840	1,628
School social background (Ref: High social)						
Low social	1.253*	.607	3.501	-1.700**	.348	.677
Middle social	.848**	.313	2.335	-.488°	.201	1.091
Type of school (Ref: private)	.730*	.405	2.075	.124	.211	1.199
Very good student BY Non-University	2.739*	1.065	15.479	-.511	.756	.600
Good student BY Non-University	2.387*	.968	10.882	.354	.782	1.425
Intercept	-.972	1.011	.378	-1.675	1.282	.187
R2Nagelkerke		.215			.171	
BIC		557.4			664.4	
AIC Akaike		490.2			592.8	
N Total		810			810	

°p<0.10 *p<0.05, **p<0.01, ***p<0.001

Table 6. Linear Regression for transition to university degree programmes (vs. high vocational training programmes).

	Model 1		**Model 2**	
	Stand. Beta	Stand. Error	Stand. Beta	Stand. Error
Marks during secondary school (Ref: Student sometimes failing)				
Very good student	.343***	.036	.439***	.046
Good student	.254***	.028	.300***	.039
Family Level of Education (Ref: Non University)	.203***	.023	.123*	.037
Sex (Ref: Men)	-.037	.022	-.035	.022
Economic stress (Ref: stress)	-.031	.028	-.027	.028
Teachers' consideration (Ref: poor performance)				
Among the best	-.180*	.070	-.175*	.070
Over average	-.193*	.065	-.197*	.065
On average	-.197*	.061	-.196*	.061
Academic self-perception (Ref: DK/DA)				
Low performance	-.016	.044	-.023	.044
High performance	.047	.040	.041	.040
Expectations at tenth grade (Ref: Other)				
Upper secondary school and university	.053	.043	.058	.043
Upper secondary school and High vocational training	-.179***	.059	-.171***	.059
School social background (Ref: High social)				
Low social	-.185***	.042	-.186***	.042
Middle social	-.132***	.027	-.121***	.027
Type of school (Ref: private)	-.162***	.025	-.164***	.025
Interactions:				
Good student BY University parents			.073	.048
Student smt. failing BY University parents			.119*	.055
R Squared	.311		.316	
F	28.798		25.970	
Sign. F	.000		.000	
N Total	973		973	

°p<0.10 *p<0.05, **p<0.01, ***p<0.001

Table 7. Linear Regression for choice of high risk degree programmes (vs. low risk degree programmes).

	Model 1		**Model 2**	
	Stand. Beta	Stand. Error	Stand. Beta	Stand. Error
Marks during secondary school (Ref: Student sometimes failing)				
Very good student	.172**	.057	.222**	.077
Good student	.035	.047	.154*	.073
Family Level of Education (Ref: Non University)	.019	.037	.047	.055
Sex (Ref: Men)	-.282***	.034	-.278***	.034
Economic stress (Ref: stress)	.040	.046	.039	.046
Teachers' consideration (Ref: poor performance)				
Among the best	.158°	.106	.160°	.106
Over average	.107	.099	.109	.099
On average	-.007	.093	-.010	.093
Academic self-perception (Ref: DK/DA)				
Low performance	.102	.070	.092	.071
High performance	.093	.063	.077	.063
Expectations at tenth grade (Ref: Other)				
Upper secondary school and university	.085*	.070	.094*	.071
Upper secondary school and High vocational training	-.002	.113	.004	.113
School social background (Ref: High social)				
Low social	-.048	.070	-.047	.070
Middle social	.006	.040	.007	.041
Type of school (Ref: private)	.019	.042	.017	.042
Interactions:				
Good student BY University parents			-.092	.074
Student smt. failing BY University parents			.058	.091
R Squared	.165		.170	
F	10.391		9.471	
Sign. F	.000		.000	
N Total	806		806	

°p<0.10 *p<0.05, **p<0.01, ***p<0.001