Explaining social inequalities in access to university: A test of rational choice mechanisms in Italy

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Abstract

This work presents a direct empirical test of the Breen-Goldthorpe (BG) rational choice model applied to social inequalities in access to university in Italy. In particular, we assess to what extent secondary effects of social background on university enrolment are accounted for by families' economic resources and relative risk aversion, among a recent cohort of high school graduates. We also assess the role played by students' numeric expectations and general perceptions of university costs, the returns to university degrees and their chances of successfully completing university. Compared to existing research, our contribution is based on a large scale longitudinal study covering different areas of a new national case, includes a larger set of indicators measuring rational choice mechanisms, and proposes a novel measurement strategy for the indicator of relative risk aversion. The core finding is that rational choice mechanisms account for around one fifth of secondary effects of social origin in university enrolment. Family's economic resources and RRA, the two explanatory mechanisms of the BG model, have a limited explanatory power, whereas the perception of the indirect costs associated to attending university is more important. Overall, high school track plays the most prominent role, thereby indicating that – despite the formal 'openness' of the system – a large part of inequalities in access to university in Italy are already produced when tracking first occurs in upper secondary education.

Keywords: social inequalities; educational opportunities; primary and secondary effects; rational choice model; Breen-Goldthorpe model; transition to university; educational transitions

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Explaining social inequalities in access to university: A test of rational choice mechanisms in Italy

1. Introduction

Rational choice theory has been increasingly mobilised for the purpose of explaining educational inequalities, conceived as the outcome of decisions that take into considerations the perceived chances of success, costs and benefits of educational options (Gambetta 1996; Erikson and Jonsson 1996). Within this research tradition, the model of educational decisions proposed by Breen and Goldthorpe (1997, BG henceforth) has gained prominence in social stratification research, where it has now countless of empirical applications.[1] The main intuition of this model is that educational decisions are primarily driven by the concern to avoid social demotion. For instance, this model predicts that, *ceteris paribus*, upper class students are more motivated to attain university degrees than working class students because these degrees maximise their chances of intergenerational immobility. This Relative Risk-Aversion (RRA) mechanism is regarded as the main driver of family background effects on educational transition propensities of students with comparable academic performance, the so-called 'secondary effects' (Boudon 1974).

This work aims to assess whether the BG model, together with some complementary rational choice mechanisms, is able to explain social inequalities in access to university in Italy. The previous empirical tests of this model may be divided into two categories. On one side, some studies have derived from this model some indirect predictions and tested them, often with encouraging results. For instance, Breen and Yaish (2006) and Davies et al. (2002) have derived from the BG model specific predictions concerning the pattern of social class differentials across educational transitions and have reported quite supportive evidence. A limitation of these indirect tests is that they introduce some auxiliary assumptions that are not essential for the model itself, but that play a crucial role to derive testable predictions. For instance, Breen and Yaish (2006) carefully stress that the predictions concerning the pattern of social inequalities across educational transitions are crucially dependent on assumptions about the beliefs of families concerning the occupational pay-offs of educational outcomes. Because reliable data on such beliefs are difficult

[1] According to Google Scholar statistics, by April 18th 2018 this article has obtained 1,978 citations.

to collect, the evidence obtained from this kind of test is quite inconclusive. Another indirect prediction of the BG model concerns the stability of educational inequalities over birth cohorts (Breen and Goldthorpe 1997: 212). This prediction has been considerably undermined by recent research (Breen et al. 2009; Barone and Ruggera 2017). However, it is unclear whether this should lead to reject the BG model, or only the untested, auxiliary assumption that its supposed mechanisms are stable over time (Schindler 2017). In short, although indirect tests are clearly informative and interesting in terms of theoretical elaboration, they are often quite inconclusive. This is even more the case when some of the indirect hypotheses are confirmed, while some others are rejected (Stocké 2007).

On the other side, some studies have tried to operationalise the supposed mechanisms of the BG model, namely RRA and the costs of education. The main issue with these direct tests is how to measure RRA properly. For instance, the studies carried out by Need and De Jong et al. (2001) and by Tolsma et al. (2010) report that measures of RRA mediate to a considerable extent the association between origins and educational attainment in the Netherlands. However, RRA is operationalised as intentions to go to university by Need and De Jong (2001); their result is thus that class differences in university plans mediate class differences in university enrolment. Tolsma et al. (2010) surveyed higher education students and asked them to report retrospectively how much they had been undecided about continuation to university. These two measures seem too loosely connected to the notion of RRA and a similar comment applies to the direct test of the BG model by Becker and Hecken (2009) based on data concerning some German Länder.

We find a more direct measurement of RRA in three direct tests that analysed social inequalities in secondary track choices in Germany (Stocké 2007) and Israel (Gabay-Egozi et al. 2010) and in tertiary enrolment intentions in the Netherlands (van de Werfhorst and Hofstede 2007). The wording of their questions is somehow different, but in all three studies interviewees were asked to what extent the concern to avoid social demotion played a role for their decisions. These three tests reported a consistent message: families are responsive to the expected costs and benefits of educational investments, but the related measures fail to mediate social origins differentials.

Hence, the three studies that came closer to directly measuring the RRA mechanism do not seem to support the core prediction of the BG model. However, it may be premature to conclude that this model has been falsified by these direct tests. First, also these more direct indicators of RRA raise some conceptual and methodological issues, as discussed in section 3. Second, it should

be noted that five out of the six above-mentioned direct tests concern only two countries, Germany and the Netherlands, which can be characterised as highly stratified educational systems. Third, four out of these six direct tests are based on small samples drawn from one single city or region. Hence, the external validity of these studies is limited. Finally, only one of these six studies used a longitudinal prospective design (Stocké 2007), which is a crucial prerequisite if we aim to measure the decision-making mechanisms *before* the actual choices are taken in order to avoid reverse causality bias.

This work presents a direct empirical test of the BG model that concerns social inequalities in access to university. Our contribution involves a new national case, Italy, where track choices take place later and are less constraining for access to university than in highly stratified school systems, thus leaving more room for choice and, possibly, for related social inequalities (Contini and Triventi 2016). Moreover, we propose a novel measurement strategy for the two explanatory mechanisms of the BG model. Furthermore, we rely on a longitudinal design and on a large scale study covering different areas of the country. The longitudinal design of the survey allows us to examine prospectively the process of enrolment in university, thus avoiding the recourse to questionable retrospective questions. Finally, the inclusion of geographical areas characterized by different socio-economic conditions enhances the external validity of our findings compared to previous research.

2. The Breen-Goldthorpe model: assumptions and predictions

The BG model starts from the rational choice assumption that decisions about educational investments reflect an assessment of their costs, benefits and chances of success. Accordingly, social class differences in economic resources, occupational aspirations and academic performance are assumed to drive educational inequalities. Academic performance thus enters the model through the so-called primary effects, that is, upper class students take more ambitious educational options because they have higher success expectations, due to their better school results. However, the BG model focuses on secondary effects and explains them with reference to the RRA and costs mechanisms.

As regards the former, the BG model conceptualises the benefits of educational decisions as expectations concerning the class destinations afforded by different educational outcomes. More specifically, in line with loss-aversion theory (Kahneman and Twersky 1979), it is assumed that

the utility of these expected benefits reflects not only their 'objective' value, but also a framing effect: families regard potential class destinations as losses or gains *relative to* a reference point, given by the social class position of the parents. For instance, gaining access to a skilled white collar job entails a different utility for an upper class student (downward mobility as a 'loss') than for his/her working class counterpart (the 'gain' of upward mobility).

According to BG, all social classes share the same priority: minimising the risk of a loss, that is, of social demotion. Hence, their *relative* risk aversion is assumed to be identical. However, because students from different classes have different reference points, occupational aspirations differ between classes. For upper class students, the priority is to maximise the chances of reaching upper class jobs, while for working class students the main goal is to maximise the chances of reaching at least the working class (as opposed to downward mobility into the 'underclass'). This explains why the former have higher occupational aspirations, which in turn feed into higher educational aspirations and more ambitious educational choices (Goldthorpe 2006). Class differences in occupational aspirations are further reinforced by differences in economic resources. Even if the absolute costs of education were the same for different classes, working class families are less equipped with financial means to meet them.[2]

3. Testing the Breen-Goldthorpe model: methodological issues

The direct tests of the BG model involve four critical decisions.

1) The first issue concerns the *measurement of the total effect of family background* on educational transitions. Because the BG model refers to social class differentials, the most straightforward solution is to equate family background with the social class of origin and to apply the dominance criterion, which selects the highest social class among those of the father and of the mother (Goldthorpe 2006). However, the loss-aversion mechanism is highly general, and it may thus apply equally well to the preservation of at least the same level of education as that of the parents, rather than only to social class immobility. In this reformulation, education matters not only for class attainment, but also for the social prestige associated to educational titles. Of course,

[2] The BG model may be further articulated with regard to the interplay between RRA and time discounting preferences (Breen et al. 2014) or beliefs about class returns to education (Breen and Yaish 2006), but here we focus on the core of the model, which was the focus of previous empirical tests.

it is equally possible that loss-aversion simultaneously operates for both parental class and education. We have used various model specifications, based respectively on social class only, parental education only, and on both indicators of social origins altogether, but the substantial findings do not change.

2) Second, once the total effect of social origins has been measured, the next step is to *isolate secondary effects* by partialling out social origins differentials in academic performance before tracking. Academic performance can refer either to school grades or to students' scores in standardised tests (Jackson 2011). In Italy the results of these tests are not disseminated to the students, nor to their teachers, and are thus very unlikely to affect educational decisions. For the analyses we thus rely on school marks at the final exam in lower secondary education, which are the most important signal of academic potential available to families before taking a secondary track.

School marks are indeed an important predictor of track choices. In Italy lower secondary education is comprehensive and lasts until the age of 14, when students must choose between academic tracks (*licei*), vocational tracks (*istituti professionali*) and intermediate technical tracks (*istituti tecnici*); they all last five years and afford access to higher education, which virtually coincides with university courses. Upper secondary track is a core predictor of access to (and completion of) university. Due to their academic orientation, *licei* recruit students with higher school performance and offer them a better training for university. Hence, track choice captures important differences in the perceived chances of success in university education. At the same time, technical and vocational schools have a more applied orientation and are thus supposed to ensure better occupational prospects after the diploma. Hence, for students of these tracks the perceived opportunity costs of university enrolment are higher (Gambetta 1996). Finally, track choice may reflect also early differences in educational and occupational aspirations. On these grounds, from a rational choice perspective, the upper secondary track can be expected to be a powerful predictor of university enrolment and a mediator of social background effects. However, the interpretation of its mediation role within the conceptual framework of primary and secondary effects is not clear cut. For similar reasons, academic performance in upper secondary education should be incorporated among the potential mediators of family background effects, but it should be interpreted as reflecting a mixture of primary and secondary effects. In our analyses we

incorporate both upper secondary track and academic performance in high school as potential mediators of the secondary effects.

3) Third, according to the BG model, secondary effects should be explained out by *measures of families' economic resources and RRA*. As regards the former, we use a set of items that refer to the degree of material deprivation of the family. As explained below, the data for the analyses are based on student questionnaires and a major advantage of this solution over income measures is that students are able to provide more reliable information. Additionally, collecting information on the income of families in the context of school surveys is highly problematic in Italy and nonresponse rates would be high. Measures of material deprivation have higher discriminatory power in the lower tail of the distribution of family's income, where indeed the BG model expects to find the most important effects of economic resources (Breen, Goldthorpe 1997:286).

As regards the measurement of RRA, on one side we have argued before that some measures are too broad in that they conflate it with university plans. These measures are also "too close" to the outcome (university enrolment) and may be thus criticised for being endogenous. On the other side, it should be noted that, according to the BG model, social class differences in education originate from a mechanism, *relative* risk aversion, that is assumed to be *constant* across social classes. In other words, according to this model, indicators that directly refer to RRA should *not* mediate family background effects. It could be argued that the studies by van de Werfhorst and Hofstede (2007) and Gabay-Egozi et al. (2010) reached negative conclusions concerning the explanatory power of the BG model partly because they used indicators of RRA, that is, they asked interviewees to what extent the concern to avoid social demotion played a role for their educational decisions[3]. However, according to the BG model, this concern should be the same across social classes. An additional issue with this measurement strategy is that risk-aversion does not necessarily operate as a conscious, deliberate psychological mechanism and that social desirability can bias the responses to this kind of questions, to the extent that interviewees are not willing to admit that they are instrumental in their educational decisions.

The solution we adopt in this work relies on an index of occupational aspirations based on a set of items asking students to rate to what extent they would be (dis)satisfied with ending up in a list

[3] Stocké (2007) differentiated two aspects of status maintenance motives: how much parents bother that their children reach a less prestigious occupation than theirs (RRA) and their beliefs about the most suitable degrees to avoid downward mobility. These two components did not mediate class differences in track choices even when they were interacted.

of jobs (company manager, doctor, accountant, surveyor, shop-owner, clerk, lawyer, industrial technician). The RRA mechanism implies that upper class students are *more dissatisfied with ending up in middle class jobs*, such as shop owner, than middle or working class students: the former are thus more motivated to continue to university to avoid social demotion into these jobs. Therefore, dissatisfaction with the prospect of entering middle class jobs should mediate social class differentials in university enrolment. In line with this prediction, we constructed an index that specifically refers to the willingness to accept middle class jobs that are clearly accessible *without* a tertiary degree.

In short, this index of occupational aspirations provides an empirical translation of the RRA mechanism that conceptualises the benefits of educational decisions in terms of class-dependent preferences about the occupational destinations afforded by different educational options. Indeed, it may be noted that Goldthorpe (2006, ch. 8) developed the notion of RRA precisely with reference to the literature on occupational aspirations stemming from the work of Keller and Zavalloni (1964) and Boudon (1979).

This index may be regarded as an intermediate solution between the two above-described measurement strategies. On one side, it is less proximate to actual decisions than university plans. On the other side, it does not directly operationalise RRA, which is assumed to be constant across social classes by the BG model, but rather its class-dependent consequences for the occupational preferences of students. Following the BG model, the motivation to avoid occupations below the upper class should be the crucial factor that differentiates upper class students from middle and working class students.

A limitation of this measurement approach is that it does not incorporate indicators of student *beliefs* concerning the occupational destinations accessible with and without a tertiary degree. Breen and Goldthorpe (1997: 278) explicitly seek to dispense with any assumption concerning class differences in beliefs about education. Therefore, these beliefs should *not* mediate class differentials in education. At the same time, Breen and Goldthorpe note that their model can accomodate such differences (*ibidem*, 290) and that, if upper class families anticipate higher returns to more ambitious educational options, such as completing university education, class inequalities in education will be reinforced. In this respect, the BG model overlaps with the model proposed by Erikson and Jonsson (1996), who note that upper class families may be equipped with better educational resources to navigate the educational system and may thus anticipate higher

returns to educational investments, due to access to better information about the actual costs, economic benefits and chances of success associated with university education. We will therefore test an expanded version of the BG model that incorporates measures of student beliefs concerning these three decision-making parameters to provide a more comprehensive analysis on the role of rational choice mechanisms for educational inequalities.

4) This leads us to the fourth and final issue to be discussed. When incorporating mediators of social background effects reflecting the mechanisms postulated by the BG model, we should not forget the existence of *competing explanations for educational inequalities*, most notably those involving the cultural and social resources of the family of origin (Bourdieu 1979; Coleman 1988); Van de Werfhorst and Hofstede 2006). The purpose of this work is not to set a context between rational choice and culturalist theories. More modestly, we would note that estimates of the effects (and of the mediation role) of the indicators of rational choice may be biased if we fail to incorporate controls for family cultural and social resources, to the extent that they correlate with both the explanatory mechanisms of the BG model and the outcome.

4. Data, variables and statistical models

4.1 Data

Data for the analyses come from the longitudinal survey of the project "Family background, beliefs about education and participation in Higher Education", which was first fielded in October 2013. This study was based on a stratified random sample of 62 Italian schools located in four Italian provinces (Milan, Bologna, Vicenza, Salerno) covering different areas of the country; the strata are defined by province and school track. All high school seniors of each selected school (N=9,159) filled in a paper-and-pencil questionnaire under the supervision of a trained interviewer. This first wave collected information on students' social background and family resources, educational paths, occupational aspirations, and university plans. Three follow-ups were conducted in the following months. In particular, in November 2014 (four months after upper secondary graduation) we recorded the actual university choices of these students using telephone interviews[4]. The response rate of the third wave of the survey was 81%. Students that did not pass

[4] This longitudinal study is nested into a randomised experiment: after the first wave, half of the schools of the sample received information about the costs, economic benefits and dropout risks associated with university enrolment. This intervention affected university enrolment only marginally, while it significantly impacted on the

the final upper secondary examination and individuals that reported missing values in the variables of interest are excluded from the analyses. Given the panel attrition between waves 1 and 3, we end up with an analytical sample of 6,114 observations. We built inverse probability weights to take into account non-participation in wave 3, following the procedures suggested by Seaman and White (2013). All the statistical models use such weights that adjust for differences in response probabilities considering a large set of observed characteristics (for more details, see the Online Supplementary Material, OSM henceforth, in particular table A13 and figure A6).

4.2 Variables

Table 1 below presents the variables used in the empirical analyses. For qualitative variables, we report the detailed categories, whereas for summary indexes we report the original items that were used to build the index, as well as some measures of the index reliability.

[Table 1 about here]

The outcome of interest is a dichotomous variable that takes value 1 for university enrolment and 0 otherwise, measured four months after upper secondary graduation, namely in November 2014. Therefore, we focus on the immediate transition from high school to university, which involves the large majority of students who decide to enrol in university education in Italy.[5] We use the parental highest level of education and social class (both defined using the dominance criterion) as indicators of social background. For social class, we rely on a simplified version of the Erikson-Goldthorpe schema, including a separate category for unemployed parents (only reported in the OSM). More details on the categories are presented in Table 1.

Final marks in lower secondary education are used as indicator of academic performance to partial out primary effects from the total effects of social background. Previous school paths are

distribution among fields of study of students who enrolled to university (Barone et al. 2016; Abbiati et al. 2016). In the analyses presented in this article we include the whole sample of students to avoid throwing out half of the sample, and we focus only on university enrolment. We control for a dummy indicating whether the student was part of the treated group. In the OSM, we show that replicating the models only on the subsample of the control group leads to virtually identical results.

[5] Data from the Ministry of Education indicates that in period considered in this study around 75% of the 1st year students were 19 years old or younger (our computation on data reported in Istat 2016).

measured by the detailed curriculum in the school track of graduation. Four variables are considered to measure the student's academic proficiency during upper secondary education: marks in Italian and in maths in grade 12, repetition of one or more school years, and conditional advancements to next grades (*debiti formativi*).

Our key variable to capture the effects of RRA refers to the students' willingness to accept a set of middle class jobs for which university education is clearly not required. These are: 1) accountant; 2) surveyor; 3) shop-owner; 4) clerk in the tourist sector; 5) industrial technician. We built a weighted index using as weights the factor loadings from a factor analysis on these variables (Cronbach's $\alpha = 0.65$; Factor analysis eigenvalue = 2.1). The choice of these occupations was validated in a pre-test of the survey, as described in the OSM.

As regards the cost mechanism of the BG model, we use an index of material deprivation of the family of origin. This index is built using six items borrowed from the EU-SILC questionnaire (see table 1). We carried out a factor analysis of these items, from which we extracted a single latent factor (Cronbach's $\alpha = 0.88$; eigenvalue: 3.8).

As mentioned above, we incorporated also measures of student beliefs about the costs, economic benefits and chances of success of the investment in university education. For each of these three parameters, we have two sets of measures. The first one is based on student numeric *expectations* of 1) the four main entries of direct university costs, 2) the earning premium of university degrees, 3) the chances of completing university on a scale from 0 to 100. The second set of indicators refers to qualitative items measuring student *perceptions* of 1) the indirect costs of university enrolment, 2) the difficulty of university studies, and 3) the labour market prospects of university graduates. The wording of these items is reported in table 1.

To control for cultural and social resources in the family, we incorporate in the models two indexes obtained through a factor analysis conducted on a set of items asking students how often they talk with parents about a number of topics (see table 1). The factor analysis reveals the existence of two latent factors: the first one measures parents' academic support to foster their children's scholastic success, whereas the second measures more generally the family's socio-cultural resources. Additionally, we included students' cultural activities and an item measuring high school enjoyment as indicators of student's own cultural resources. Descriptive statistics are presented in table A1 and the correlations between the quantitative indexes used in the analyses are reported in table A2 in the OSM.

4.3 Methods

The empirical analysis is organized in four steps. First, we analyse the social stratification of enrolment at university, by showing to what extent class of origin and parental education are associated with the probability of entering university after upper secondary graduation. We apply binomial logistic regression models, adopting two model specifications. Model 1 jointly includes the two indicators of social background and socio-demographic control variables (see table 1). Model 2 adds lower secondary final marks, and it is used to disentangle the secondary effects of social origin. [6]

The second step examines the relationship between social background and the indicators referring to rational choice mechanisms: RRA, economic resources and the three pairs of items referring to anticipated costs, benefits and chances of success. We control for the socio-demographic variables.

In the third step, we assess to what extent these rational choice indicators are associated with university enrolment using binomial logistic regression models. We are interested in the net effects of these rational choice indicators,[7] thus the models include all control and mediator variables presented in Table 1. We perform the analysis on the whole sample of students and by upper secondary track.

The last step assesses to what extent the rational choice indicators, along with other students' characteristics, account for social inequalities in university enrolment. We use the KHB method (Karlson, Holm and Breen 2012) to decompose the effects of social origin net of final marks in lower secondary education (and sociodemographic variables), that is, the secondary effects of social background. In the KHB analysis, social class and parental education are considered in separate models.

[6] A general limitation of the decompositions into primary and secondary effects is the assumption that these are additive, while it is possible that different classes of origins react differently to the same ability signals. For a recent investigation of this issue on the Italian case, see Bernardi and Triventi (2018).

[7] A limitation of this modelling strategy is that the standard errors for the effects of the variables derived from factor analyses cannot be adjusted for measurement error.

5. Empirical results

5.1 Social stratification of enrolment at university

As a first step, we analyse to what extent the class of origin and parental education are associated with the probability of entering university. In figure 1a, we see that students from the service classes (I-II) have a probability of 0.84, while this proportion decreases to 0.69 among students with white collar parents (IIIa) and to 0.52 among those from the petty bourgeoisie (IV), to reach 0.36 among the children of the unskilled working class (VII). A similar pattern is found for parental education (figure 1b): enrolment at university is much more common among students with tertiary-educated parents (0.85) than among those with upper secondary educated parents (0.62) and especially those with low-educated parents (0.35).

[Figure 1 about here]

Figure 1c reports the results of two logistic regression models predicting university enrolment according to social origin. The estimated average partial effects from model 1, where only socio-demographic control variables are included, indicate that social class and parental education jointly contribute to social inequalities in university enrolment. In this joint specification, the net effect of social class may more directly relate to status maintenance motives to the extent that parents' class defines the reference point for social demotion, while parents' education might relate more to knowledge of and familiarity with university education.[8]

Model 2 includes final marks in lower secondary education, our indicator of academic performance before tracking. Estimates from model 2 can thus be interpreted as our best measure of secondary effects in the transition to university. The overall pattern is clear: early academic performance is not a major driver of social inequalities in access to university in Italy, in line with previous research on this country (Contini and Scagni 2013; Contini and Triventi 2016). Comparing students with the same socio-demographic characteristics and final marks in lower secondary education, the difference between the most advantaged and disadvantaged groups is

[8] Due to increased educational requirements for occupations, children may have to attain higher educational qualifications than their parents to avoid downward class mobility.

around 26 percentage points for social class (EGP class VII versus I-II) and 29 percentage points for parental education (lower secondary versus university degrees).

Further analysis indicates that enrolments vary strongly also across high school tracks, from 0.88 in the academic track to 0.41 and 0.18 in the technical and vocational tracks. However, the social stratification of university enrolments works in a very similar way across different school tracks (figure A2 in the OSM). The patterns commented above are found for all school tracks, and the social differentials are surprisingly alike in size. Hence, the main difference between school tracks is found in the baseline levels of transition to university, not in the advantages enjoyed by students from higher social backgrounds.

5.2 Social background and rational choice indicators

In the second step of the analysis we assess whether social background correlates with the different rational choice indicators. Figure 2 reports the coefficients from OLS regression models predicting these indicators as a function of social background variables, controlling only for socio-demographic variables.

[Figure 2 about here]

We see that economic deprivation is socially stratified in the expected direction: students from the upper class display much lower values on this indicator compared to students from the middle classes, who are in turn less deprived than those from the working class. Similarly, economic deprivation is more widespread among students with low-educated parents, although parental education matters less than class for this indicator. The second index refers to RRA, with higher values indicating higher willingness to accept middle class jobs that do not demand a university degree. As expected, students from the lower social classes and with less educated parents are more willing to accept less prestigious occupations. The magnitude of these differences is rather similar for the two indicators of social background. Interestingly, the two middle classes (IIIa and IV) differ only to a minor extent from the service class (reference category), but they are much less willing to accept less prestigious jobs than the three categories of the working class.

The third and fourth graphs display the relationship between social origin and students' beliefs about returns to university degrees, measured either as a qualitative perception of their economic value (Perceived Returns), or as a more specific numeric expectation on the university wage premium (Expected Wages). In line with a previous study for Italy (Abbiati and Barone 2016), lower social groups are less optimistic as regards returns to university degrees, but the observed differences are modest.

The fifth and sixth graphs report the estimated differences by social origin in the perceived difficulty of university studies and in the numeric expectation of successfully completing a degree if enrolled at university. We detect no significant difference among students from different social classes in the perceived difficulty of university studies and only some moderate differences related to parental education. Both indicators of social origin are instead strongly related to the expected probability of succeeding at university (ranging from a minimum of 0.12 to a maximum of 0.42 standard deviations). Hence, contrary to the hypothesis of Erikson and Jonsson (1996), students from lower social groups do not systematically perceive university studies as more difficult than privileged students, but they anticipate lower chances of success, most likely because they are underrepresented in the academic track and they perform less well in high school.

Finally, the expected direct costs of university studies are not stratified by social background, while parental education and social class are strongly related to the perceived indirect costs, with differences among categories ranging from 0.19 to 0.50 standard deviations. The previous educational paths play a significant role also in this respect: students from the lower social groups attend much more often vocational and technical tracks that are perceived to afford better labour market prospects than academic tracks. Indeed, the association between social background and, respectively, the expected chances of success and indirect costs of university studies is substantially reduced when controlling for school track and achievement in secondary education (Model 2, table A4 in the OSM). Hence, social origins effects on these beliefs reflect differences in the actual school experiences of students, rather than different perceptions of the value of educational investments. The only case for genuine social differences in beliefs concerns the perceived economic premium of college degrees (see Abbiati and Barone 2016).

5.3 Rational choice indicators and enrolment at university

In the third step of our analysis, we assess to what extent the rational choice indicators are related to university enrolment and whether this association varies across school tracks. Figure 3 presents the corresponding average partial effects obtained from a binomial logistic regression model predicting university enrolment, controlling for the full set of control and mediator variables reported in table 1.

Economic deprivation and occupational aspirations correlate with university enrolment in the expected direction. Coming from an economically deprived family decreases the chances to enrol at university and students who are more willing to accept less prestigious jobs are less likely to enrol. Nevertheless, the effects of these two variables are modest, since one standard deviation change on both indexes results in a decreased chance of entering university of around 2 percentage points. In the graph on the right, we see that economic deprivation plays a modest role irrespective of the track attended in upper secondary education. To the contrary, the indicator of RRA is significantly related with enrolment among students from technical institutes, but much less so among those from the academic and vocational tracks.

[Figure 3 about here]

Expectations about economic returns to tertiary degrees positively increase the chances of university enrolment, and the effect of the perceived economic value of university degrees is larger than that of the specific expectation on the college wage premium (4 vs. less than 2 percentage points). Students from technical institutes are more reactive also to this decision-making mechanism. The expected probability of university completion positively correlates with university enrolment (around 2 percentage points for one standard deviation increase in this index), whereas the perceived difficulty of university studies does not seem to play any role. Again, the students who are more responsive are those from the technical track. Finally, students who perceive higher direct and indirect costs are less likely to enrol at university, with indirect costs playing a more important role than direct costs. Indirect costs matter especially for students from technical institutes.

Overall, university enrolments are only moderately responsive to the perceived opportunities and constraints of investments in university education. Among the various rational choice

mechanisms, enrolments are more reactive to the perceived indirect costs and to the anticipated returns to tertiary degrees. In both these respects, this is particularly the case for students of technical institutes, whose decisions are more reactive to cost-benefit calculations than those of students from the other tracks.

5.4 To what extent do rational choice indicators explain secondary effects?

Finally, we use the KHB method to explain the secondary effects of social background on university enrolment. For reasons of space, for each measure of social background two-group comparisons are reported. For social class, we compare students from the service class (I-II, reference category) with those, respectively, from the white-collar class (IIIa) and from the working class and the petty bourgeoisie (IV, V-VI, IIIb, VII). When considering parental education, we compare students with tertiary-educated parents with those whose parents have attained no more than upper secondary and lower secondary education. The upper panel of the table reports the average partial effects from the two model specifications used for the decomposition. The reduced model includes only social origins, the sociodemographic control variables and lower secondary graduation marks to isolate secondary effects, whereas the full model incorporates also the mediators. The third row reports the difference between the average partial effects of the two models. The lower panel reports the percentage of secondary effects accounted for by each variable and cluster of variables.

[Table 2 about here]

By including all the explanatory factors, we account for a large share of secondary effects in access to university (63-64% for social class and 65-67% for parental education). However, the contribution of the rational choice mechanisms altogether is not very large (20-24%). Among these rational choice factors, the most important contribution comes from the perceived indirect costs, which account alone for 7-9% of the secondary effects in the transition to university. The explanatory power of the indexes of economic deprivation and of RRA is remarkably modest for both indicators of social background (between 2.2% and 4.5% of secondary effects).

The three indicators of cultural and social resources do not perform much better, since altogether they account for only 5-6% of secondary effects. The most prominent explanatory role is played by the secondary school track, which alone accounts for one-third (32-35%) of secondary effects. Hence, social inequalities in access to university are to a significant extent a by-product of earlier inequalities in track choice. Additional analyses suggest that the large differences by track in university enrolment, which are found even controlling for socio-demographic characteristics and previous academic achievement, are explained only to a limited extent by rational choice mechanisms (table A6 in the OSM). Moreover, the explanatory power of rational choice factors does not increase much if we perform the decomposition analysis by high school track (table A7 in the OSM).

5.5 Robustness checks

We conducted a number of robustness checks that are reported in the OSM. First, we experimented different definitions of our rational choices indicators. We included not only an index measuring the willingness to accept middle class jobs, but also an index measuring the preference for upper class occupations. We also built an alternative measure using only the highest score of satisfaction attributed by each student to the different items concerning occupations that do not require a university degree. Finally, for the indicators of expected wages and expected chances of success, we used the respondent's estimate for the preferred field of study, rather than the average of the estimates referring to the first three preferred fields. All these alternative definitions do not change substantially the pattern of our findings (tables A9 and A10 in the OSM).

Second, given that disentangling primary and secondary effects for university enrolment is ambiguous in tracked school systems (see section 3), we decomposed secondary effects in different ways. Controlling also for indicators of school achievement in upper secondary education does not change the results (table A11 in the OSM). Excluding the high school track from the mediators (table A12 in the OSM) leads to a slight increase in the contribution of rational choice factors.

Third, given that the dropout rate is high in the Italian universities (Argentin and Triventi 2011), we replaced our outcome variable (enrolment right after upper secondary graduation) with a variable measuring whether the respondents were enrolled at university one year and half after high school graduation (wave 4 of the longitudinal study). Again, the main findings are confirmed

(figure A5 and table A8 in the OSM). The same is true for models estimated using complete case analysis instead of weighted analysis accounting for panel attrition (table A14 in the OSM).

6. Concluding remarks

This article has investigated the relationship between social origins and university enrolment among Italian high school leavers. We have isolated secondary effects from primary effects and tested some explanations for the former, with particular attention to the core rational choice mechanisms postulated by the BG model. Despite this model enjoys a prominent position in educational research, there is a small number of direct tests, which involve few countries, seldom use a longitudinal design and reach conflicting conclusions. We have argued that the measurement of RRA is a probable reason of disagreement: when RRA is equated with university plans, it reveals high explanatory power, but when it is equated with the motivation to avoid social demotion, it mediates social background differentials only marginally. Our direct test adds a new country, relies on a longitudinal design and a large sample, and proposes to measure the class-specific effects of RRA in terms of motivation to avoid middle class jobs that clearly do not require a university degree. As argued above, according to the BG model, social classes should not differ in their relative occupational aspirations, but given their different reference thresholds, their motivation to avoid middle class jobs should differ.

Our main results may be summarised as follows. First, academic performance before tracking accounts for a significant but modest portion of social background differentials in Italy: secondary effects are prominent. Second, family's economic resources and RRA, the two key explanatory mechanisms of the BG model, correlate with university enrolment, but only modestly. More generally, educational decisions are responsive to the subjective assessments of the direct and indirect costs, chances of success and economic returns associated with university education, but only to a limited extent. Third, RRA and economic resources mediate social origins differentials only marginally, while the subjective assessments of rational choice parameters moderately enhance the explanatory power of the model. Fourth, academic track displays a strong correlation with university enrolment and accounts for a substantial portion of social background differentials. Fifth, altogether the predictors accounting for secondary effects mediate approximately two thirds of the social background differentials and thus shed light on large part of social inequalities in university enrolment.

Overall, these results are not favourable to the BG model, either in its standard formulation or in a relaxed version allowing for social class differences in beliefs about education. Crucially, its two core mechanisms do not seem to play any major role for social background differentials in university enrolment in Italy. Of course, these mechanisms may play a more important role for track choices, which in turn affect university enrolment. Hence, we must circumscribe our negative conclusions to the specific educational transition analysed in this study. Indeed, if track decisions are taken with a view to enrolling to university (Breen and Goldthorpe 1997:287), even the limited responsiveness of enrolments to subjective assessments of costs and benefits may not be problematic for the model, since many families may have already decided whether to attend university when choosing the secondary track. Indeed, we know that a large majority of graduates from the academic track enrol at university and a large majority of graduates from the vocational track do not enrol. The intermediate track leaves both options open and thus attracts students who are more undecided about continuation: indeed, we have found that graduates from this track are much more responsive to cost-benefit assessments.

Still, even after controlling for secondary track, in the transition to university we observe substantial secondary effects that the BG model is not able to explain, a finding that undermines its reductionist ambitions (Breen and Goldthorpe 1997: 298) and that contradicts the conclusions of the two direct tests reporting the most favourable evidence for this model, which referred to access to higher education. Moreover, our results are not very different when fitting the measures of RRA and economic resources with and without controlling for secondary track, which undermines the argument that track choices reflect RRA and cost constraints. Additionally, in the OSM we show that the strong effects of secondary track on university enrolment are only modestly mediated by rational choice mechanisms.

We would stress that also our measure of RRA is not immune to limitations, most importantly because it is not restrictive enough. In particular, a potential shortcoming of our measure is that differences in dissatisfaction with middle class jobs may reflect not only differences in the threshold that defines downward social mobility, but also other decision-making mechanisms (cf. Morgan 2005; Bourdieu 1979). Hence, had we found that this measure had high explanatory power, we could not have discarded alternative interpretations of this finding. Nonetheless, this issue seems less problematic in our case, since occupational aspirations display low explanatory

power. Another possibility is that RRA is more relevant to the parents, who were not interviewed, than to their children.

We suspect however that the negative findings reported in this empirical test, as well as in some previous direct tests cited in section 1, are not methodological artefacts. The BG model may fail to explain secondary effects, at least in some countries and for some educational transitions, because its underlying assumptions may not always hold. In particular, this model assumes that educational decisions involve some risk, that is, that the more rewarding option leads to inferior occupational outcomes if it is not completed. However, this may not always be the case. For instance, in Italy and in most other Western countries university dropouts do not underperform in the labor market relative to diploma holders that did not continue to university (Schnepf 2014). If this is the case, it may be worth for scholars to direct their attention also to alternative explanations of educational inequalities (Erikson and Jonsson 1996; Morgan 2005).

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Figures

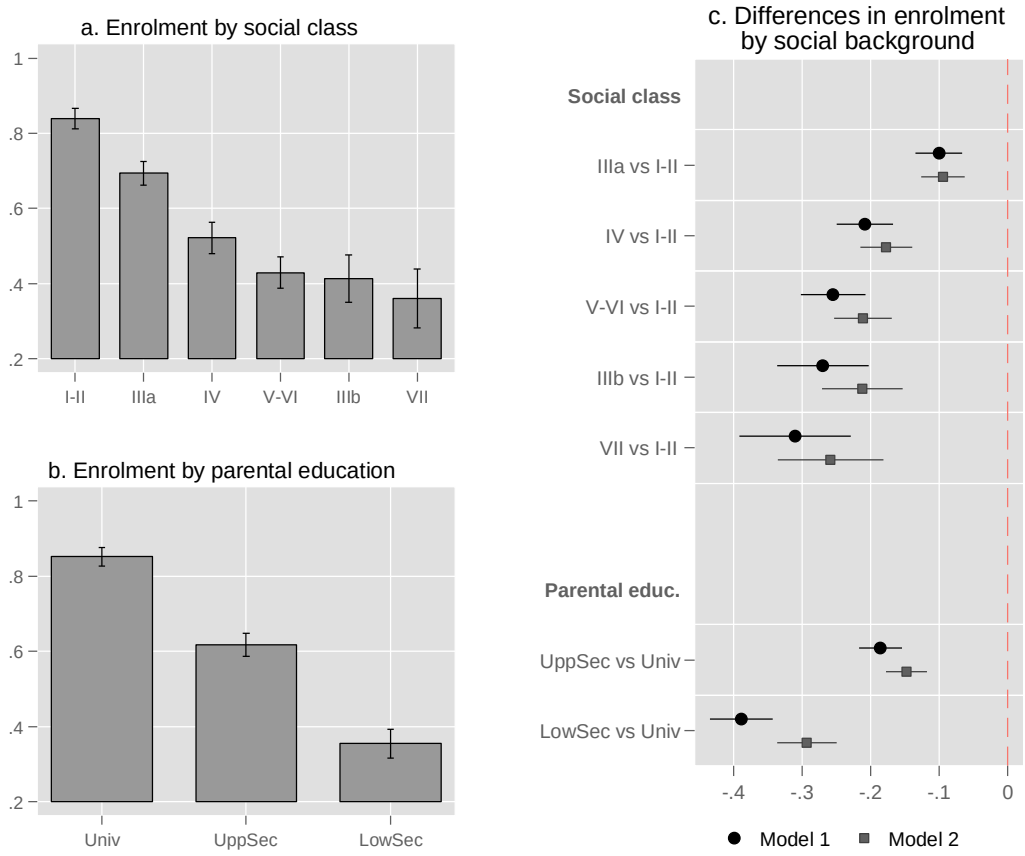

Figure 1 – *Proportion of upper secondary graduates enrolled at university by social class (graph a) and parental education (graph b) and average partial effects from binomial logistic regression predicting enrolment at university according to social background variables (graph c).*

Note: Model 1 includes only parental education and social class of origin and sociodemographic control variables, Model 2 adds final marks in lower secondary education (see table 1 for more details).

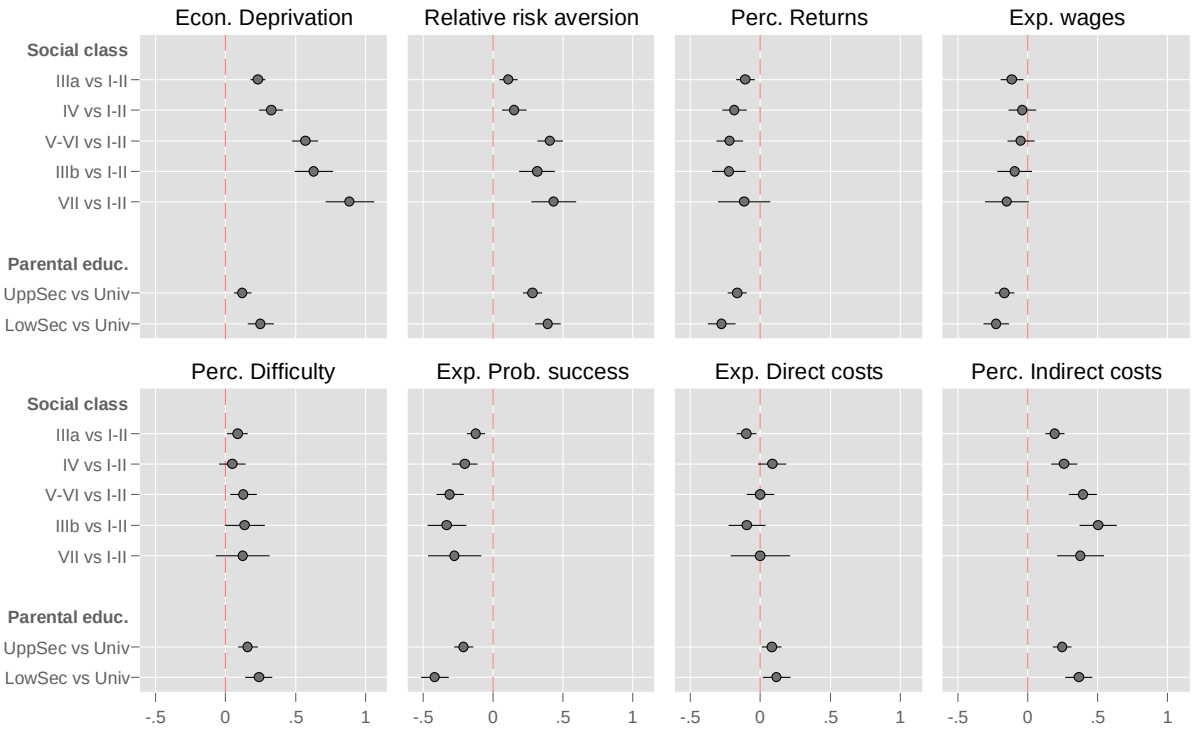

Figure 2 – *OLS linear regression predicting rational choice indicators: average partial effects and 95% confidence intervals of social background variables*

Note: all the eight outcomes are standardized to have means equal to zero and variance equal to one.

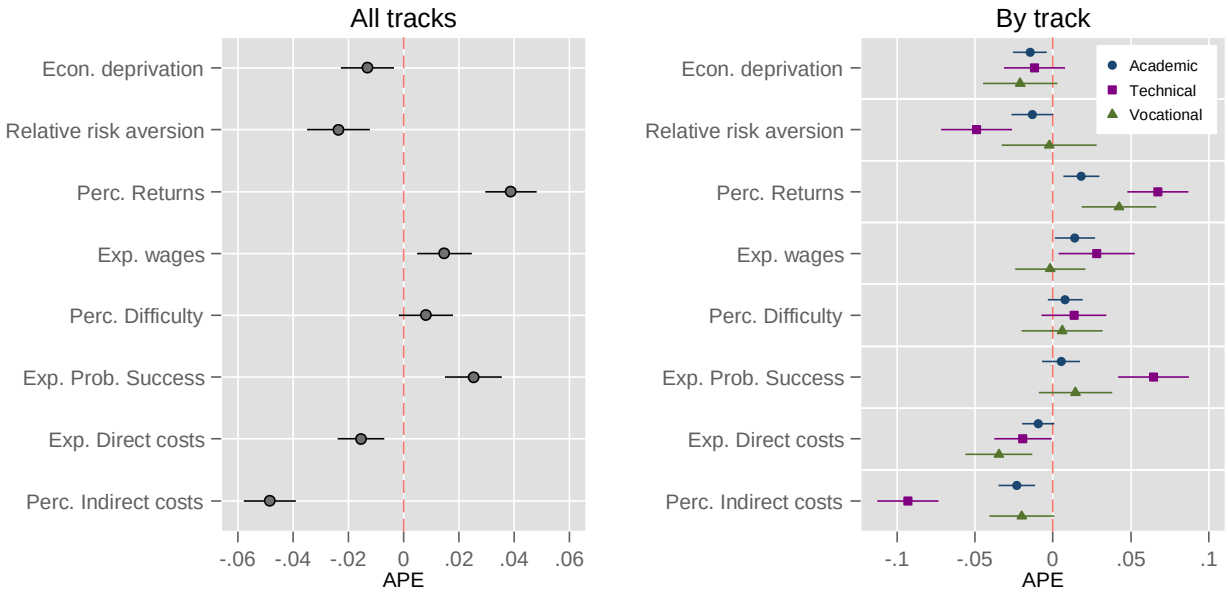

Figure 3 – *Logistic regression predicting university enrolment: average partial effects and 95% confidence intervals of rational choice indicators.*

Note: the models include all control variables and mediator variables presented in Table 1.

Tables

Table 1 – Variables description

Variable	***Variable description***
Outcomes	
Enrolment at university (from Wave 3)	0) No; 1) Yes
Independent variables	
Social background	
Social class of origin: EGP	1) I+II; 2) IIIa; 3) IV; 4) V+VI; 5) IIIb; 6) VII; 7) Unemployed
Parental education	1) University; 2) Upper secondary; 3) Lower secondary or lower
Mediators	
Academic proficiency before tracking	
Lower secondary graduation mark (grade 8)	1) Pass; 2) Good; 3) Very good; 4) Excellent

Academic proficiency after tracking	
Mark in Italian (grade 12)	Range: 0−10
Mark in Mathematics (grade 12)	Range: 0−10
Repetition of school year	0) Never; 1) At least once
Conditional advancements to next grades	0) Never; 1) At least once
Tracking	
Track/curriculum of diploma	1) Academic, classical lyceum; 2) Academic, scientific lyceum; 3) Academic, foreign languages lyceum; 4) Academic, other curriculum; 5) Technical, business; 6) Technical, industrial; 7) Vocational, business; 8) Vocational, industrial.
Rational choice factors	All indexes are standardized to have mean equals to zero and standard deviation equals to one.
Economic deprivation	To what extent (A lot, a bit, not at all) in the last 12 months, the student's family encountered difficulties in a) going on holidays for at least one week; b) buying essential clothes; c) buying essential food; d) paying the bills; e) eating out at least once per month; f) paying for transportation. [Summary weighted index: Cronbach's $\alpha = 0.88$; Factor analysis eigenvalue = 3.8]
Relative risk aversion	From 1 to 10, to what extent the student would be satisfied with ending up in each of the following occupations: a) accountant, b) surveyor, c) shop−owner, d) clerk, e) industrial technician. [Summary weighted index: Cronbach's $\alpha = 0.65$; Factor analysis eigenvalue = 2.1]
Perceived returns	Additive index summarizing answers to three questions: a) a university degree does not improve the chances of finding a good job; b) university graduates have more chances than upper secondary graduates to find a good job; c) the costs of university studies are widely repaid by the wages earned as a graduate. Answers on a 1−10 scale.

Expected wage returns	Difference between expected earnings as a university graduate (1) and expected earnings as upper secondary graduate (2). 1) 'If you enrolled at university, what might your net monthly income from full−time employment be four years after earning a degree (bachelor or single−tier degree) in each of your preferred fields?' Average of the answers referred to the first three selected courses [Simple additive index: Cronbach's α = 0.81]. 2) 'Should you not continue to university education, what might your net monthly income from full−time employment be four years after completing upper secondary education?'
Perceived difficulty	'University studies are very difficult': student agreement on a scale from 1 (not at all) to 10 (very much).
Expected probability of success	'If you enrolled at university, what chance of completing each of your preferred fields do you think you would have? Please give a number between 0 (no chance at all) and 100 (sure to achieve the degree)'. Average of the answers that referred to the first three selected fields of study [Simple additive index: Cronbach's α = 0.80].
Expected direct costs	Should you decide to continue to university education, how much do you think you would pay for: a) university fees (yearly); b) study materials (yearly); c) lunches (monthly); d transportation (monthly). Please try to provide an estimate even if you have never thought about it'. Sum of the expected monthly costs (in Euros).
Perceived indirect costs	'Enrolling at university would mean waiting too long before earning an income.' Student agreement on a scale from 1 (not at all) to 10 (very much).
Cultural/social capital	
Parents' academic support	How often [Never, Sometime, Often, Very often] the student talks at home with parents about his/her a) performance at school; b) difficulties at school; c) educational plans after upper secondary school.

	[Summary weighted index: Cronbach's α = 0.64; Factor analysis eigenvalue = 2.2]
Family socio−cultural capital	How often [Never, Sometime, Often, Very often] the students talk at home with parents about d) books; e) classical music; f) science [Summary weighted index: Cronbach's α = 0.54; Factor analysis eigenvalue = 1.2]
Student's cultural capital	How often [Never, 1−2 times per year, Monthly, Weekly, Daily] the student: a) visit a museum; b) go to the theatre; c) attend music concerts; d) read books. [Summary weighted index: Cronbach's α = 0.55; Factor analysis eigenvalue = 1.9]
School enjoyment	'Do you like going to school?' Student answers on a 1 (not at all) − 10 (very much) scale.
Socio−demographic control variables	
Sex	0) Male; 1) Female
Country of birth	0) Italy; 1) Abroad
Province	1) Bologna; 2) Milano; 3) Salerno; 4) Vicenza
Randomisation	0) Control; 1) Treated

Table 2 – *KHB decomposition: secondary effects of social class of origin (APE) and % accounted for by the rational choice indicators and other mediators*

	Social class		Parental education	
	IIIa vs I–II	Other classes vs I–II	UppSec vs Univ	LowSec vs Univ
APE and SE				
Reduced model	−0.126***	−0.297***	−0.193***	−0.389***
	(0.013)	(0.013)	(0.013)	(0.017)
Full model	−0.048***	−0.107***	−0.065***	−0.140***
	(0.015)	(0.014)	(0.014)	(0.019)
Difference	−0.078	−0.191	−0.127	−0.249
% explained				
Econ. deprivation	3.0	2.7	2.2	2.2
Relative risk aversion	3.9	3.7	4.6	3.7
Perc. returns	4.6	3.9	3.8	3.1
Exp. wage returns	1.9	0.8	1.2	0.8
Perc. difficulty	−0.8	−0.4	−0.8	−0.6
Exp. prob. of success	3.3	2.8	2.9	2.8
Exp. direct costs	−0.9	0.0	0.4	0.2
Perc. indirect costs	9.5	7.4	8.0	6.2
Total % explained by rational choice indicators	**24.4**	**20.8**	**22.3**	**18.4**
Upper secondary curriculum	33.2	31.8	35.5	32.1
Previous achievement	−0.1	1.6	3.2	2.2
Cultural/Social capital	6.5	4.9	5.5	4.3
School enjoyment	2.0	1.0	0.7	0.5
Total % explained by all mediators	***66.1***	***60.0***	***67.2***	***57.5***

Observations	6,114	6,114	6,114	6,114

Note: the estimates are adjusted for the socio−demographic control variables (see table 1) and for lower secondary school final marks.

Explaining social inequalities in access to university: A test of rational choice mechanisms in Italy

Online Supplementary Material

Table of contents

Descriptive statistics

Table A1 – Descriptive statistics of the regressors used in the analysis (N=6,114)

	Mean	Std. Dev.	Min	Max
Enrolled at university (wave 3)	0.615	0.487	0	1
Social class				
iiia	0.368	0.482	0	1
iv	0.161	0.368	0	1
v+vi	0.145	0.353	0	1
iiib	0.052	0.223	0	1
vii	0.029	0.169	0	1
Unemployed	0.030	0.171	0	1
Parental education				
Diploma	0.565	0.496	0	1
Lower Sec or lower	0.185	0.388	0	1
Treatment	0.472	0.499	0	1
Female	0.531	0.499	0	1
Born abroad	0.056	0.230	0	1
Province				
MI	0.431	0.495	0	1
SA	0.253	0.434	0	1
VI	0.185	0.389	0	1
LowSec final mark				
Good	0.280	0.449	0	1
Very good	0.421	0.494	0	1
Excellent	0.178	0.383	0	1
Econ. deprivation	-0.02	0.97	-1.05	3.52

Relative risk aversion	-0.02	0.97	-2.06	3.22
Per. Returns	0.04	0.98	-3.21	2.36
Exp. wages	0.00	0.98	-4.79	7.80
Per. Difficulty	-0.02	1.00	-2.98	1.62
Exp. Prob. Success	0.03	0.98	-4.17	1.30
Exp. Direct costs	0.00	1.00	-1.26	5.43
Per. Indirect costs	-0.03	0.99	-1.58	1.75
School curriculum				
Lyceum, scientific	0.281	0.450	0	1
Lyceum, foreign languages	0.067	0.251	0	1
Other general curriculum	0.062	0.242	0	1
Technical, Business	0.211	0.408	0	1
Technical, industrial	0.108	0.311	0	1
Vocational, business	0.085	0.279	0	1
Vocational, industrial	0.069	0.254	0	1
Italian mark	6.957	0.990	1	10
Maths mark	6.737	1.248	1	10
Repetition of school year	0.197	0.398	0	1
Conditional advancements to next	0.507	0.500	0	1
Parents' academic support	0.02	0.98	-2.80	1.86
Family socio-cultural capital	0.01	0.99	-1.60	3.79
Student's cultural capital	0.02	0.97	-1.74	5.27
Appreciation of school experience	6.46	1.87	1	10
Weight	1.21	0.10	1.05	2.31

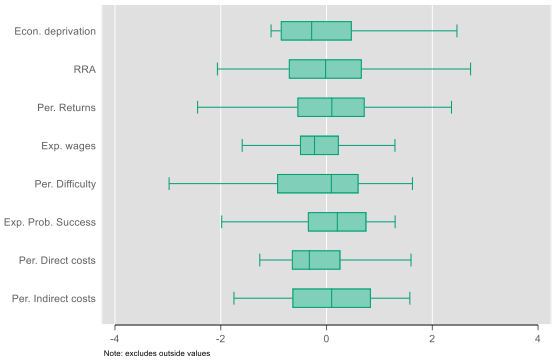

Figure A1 – *Box-plot of the rational choice indicators*

Table A2 - *Correlation between the rational choice indicators and additional mediators*

	Econ. deprivation	RRA	Per. Returns	Exp. Wage returns	Per. difficulty	Exp. Prob. success	Exp. Direct costs	Per. Indirect costs	Parents' academic support	Family socio-cultural capital	Student cultural capital
Econ. deprivation	1.00										
RRA	0.09	1.00									
Per. Returns	-0.12	-0.05	1.00								
Exp. Wage returns	-0.05	-0.08	0.18	1.00							
Per. difficulty	0.06	0.14	0.06	0.00	1.00						
Exp. Prob. success	-0.13	-0.21	0.18	0.07	-0.23	1.00					
Exp. Direct costs	0.00	0.00	-0.05	0.01	0.01	-0.07	1.00				
Per. Indirect costs	0.17	0.29	-0.25	-0.11	0.20	-0.30	0.04	1.00			
Parents' academic support	-0.11	-0.11	0.08	0.04	-0.04	0.15	0.02	-0.20	1.00		
Family socio-cultural capital	-0.07	-0.12	0.11	0.08	-0.11	0.19	-0.01	-0.19	0.27	1.00	

Student cultural capital	-0.07	-0.19	0.10	0.02	-0.18	0.26	-0.05	-0.24	0.17	0.43	1.00

Estimates presented in the figures in the manuscript

Tab A3 – Tables with estimates presented in Fig 1: Average partial/marginal effects, standard errors and levels of statistical significance from binomial logistic regression models predicting enrolment at university

		Model 1	Model 2	Full model (not show in fig 1)
Social class of origin (Ref. I+II)	IIIa	-0.100***	-0.094***	-0.037**
		(0.017)	(0.016)	(0.015)
	IV	-0.208***	-0.177***	-0.074***
		(0.021)	(0.019)	(0.016)
	V+VI	-0.255***	-0.211***	-0.077***
		(0.024)	(0.022)	(0.018)
	IIIb	-0.270***	-0.212***	-0.067***
		(0.034)	(0.030)	(0.023)
	VII	-0.310***	-0.259***	-0.090***
		(0.041)	(0.039)	(0.029)
	Unemployed	-0.261***	-0.234***	-0.085***
		(0.037)	(0.036)	(0.029)
Parental education (Ref. University)	Upper secondary	-0.186***	-0.148***	-0.045***
		(0.016)	(0.015)	(0.015)
	Lower secondary	-0.389***	-0.293***	-0.102***
		(0.023)	(0.022)	(0.019)
	Treatment	-0.038	-0.034*	-0.021*
		(0.023)	(0.018)	(0.011)

	Female	0.120***	0.071***	0.006
		(0.016)	(0.015)	(0.012)
	Born abroad	-0.107***	-0.089***	-0.026
		(0.029)	(0.028)	(0.023)
Province (Ref. Bologna)	Milan	0.084**	0.077**	0.012
		(0.039)	(0.031)	(0.020)
	Salerno	0.194***	0.113***	-0.024
		(0.041)	(0.034)	(0.023)
	Vicenza	0.126***	0.075**	0.012
		(0.042)	(0.034)	(0.022)
Lower secondary graduation mark (Ref. Pass)	Good		0.182***	0.037**
			(0.022)	(0.017)
	Vey Good		0.372***	0.049***
			(0.023)	(0.019)
	Excellent		0.525***	0.063***
			(0.024)	(0.023)
	Econ. deprivation			-0.013***
				(0.005)
	Relative risk aversion			-0.024***
				(0.006)
	Per. Returns			0.039***
				(0.005)
	Exp. Wage returns			0.015***
				(0.005)
	Per. difficulty			0.008
				(0.005)

	Exp. Prob. success	0.025***
		(0.005)
	Exp. Direct costs	-0.015***
		(0.004)
	Per. Indirect costs	-0.048***
		(0.005)
Track (Ref. Lyceum, classical)	Lyceum, scientific	-0.003
		(0.025)
	Lyceum, foreign languages	-0.090***
		(0.035)
	Other general curriculum	-0.163***
		(0.038)
	Technical, Business	-0.259***
		(0.030)
	Technical, industrial	-0.300***
		(0.035)
	Vocational, business	-0.494***
		(0.041)
	Vocational, industrial	-0.464***
		(0.046)
	Mark in Italian at the end of previous year	0.024***
		(0.006)
	Mark in mathematics at the end of previous year	0.025***
		(0.005)
	Repetition of school year	-0.044***
		(0.014)

Conditional advancements to next grades			-0.031***
			(0.011)
Parents' academic support			-0.005
			(0.005)
Family socio-cultural capital			0.001
			(0.006)
Student's cultural capital			0.024***
			(0.006)
School enjoyment			0.015***
			(0.003)
Observations	6,114	6,114	6,114

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A4 – Estimates reported in Fig 2 in the manuscript. OLS linear regression models predicting indicators of rational choice: coefficients, standard errors and levels of statistical significance

	Econ. deprivation	Relative risk aversion	Per. Returns	Exp. Wage returns	Per. difficulty	Exp. Prob. success	Exp. Direct costs	Per. Indirect costs
				Model 1 (no control variables)				
Social class of origin (Ref. I+II)								
IIIa	0.231***	0.110***	-0.107***	-0.113***	0.085**	-0.122***	-0.099***	0.193***
	(0.027)	(0.033)	(0.034)	(0.041)	(0.038)	(0.033)	(0.035)	(0.035)
IV	0.325***	0.152***	-0.185***	-0.039	0.048	-0.202***	0.084	0.261***
	(0.043)	(0.045)	(0.045)	(0.050)	(0.048)	(0.047)	(0.052)	(0.048)
V+VI	0.569***	0.407***	-0.220***	-0.048	0.127***	-0.308***	-0.001	0.395***
	(0.047)	(0.046)	(0.048)	(0.050)	(0.048)	(0.049)	(0.049)	(0.051)
IIIb	0.632***	0.316***	-0.224***	-0.093	0.137*	-0.330***	-0.096	0.503***
	(0.070)	(0.065)	(0.061)	(0.063)	(0.072)	(0.071)	(0.067)	(0.068)
VII	0.888***	0.434***	-0.117	-0.149*	0.123	-0.275***	-0.000	0.377***
	(0.087)	(0.081)	(0.094)	(0.080)	(0.098)	(0.097)	(0.108)	(0.085)
Unemployed	0.780***	0.385***	-0.182**	-0.107	0.053	-0.177*	-0.012	0.300***
	(0.093)	(0.083)	(0.076)	(0.075)	(0.091)	(0.100)	(0.084)	(0.082)

Parental education								
(Ref. University)								
Upper secondary	0.121***	0.281***	-0.165***	-0.167***	0.159***	-0.210***	0.081**	0.247***
	(0.032)	(0.035)	(0.035)	(0.036)	(0.036)	(0.035)	(0.036)	(0.034)
Lower secondary	0.251***	0.391***	-0.276***	-0.226***	0.237***	-0.415***	0.117**	0.365***
	(0.048)	(0.047)	(0.050)	(0.046)	(0.050)	(0.050)	(0.051)	(0.049)
Model 2 (full control variables)								
Social class of origin								
(Ref. I+II)								
IIIa	0.205***	0.066**	-0.057*	-0.085**	0.040	-0.044	-0.112***	0.108***
	(0.028)	(0.031)	(0.034)	(0.040)	(0.038)	(0.029)	(0.035)	(0.032)
IV	0.252***	0.058	-0.129***	-0.020	-0.012	-0.056	-0.005	0.134***
	(0.043)	(0.043)	(0.044)	(0.051)	(0.047)	(0.040)	(0.050)	(0.044)
V+VI	0.461***	0.261***	-0.127***	0.005	0.035	-0.100**	-0.091*	0.204***
	(0.049)	(0.043)	(0.048)	(0.054)	(0.048)	(0.041)	(0.048)	(0.047)
IIIb	0.529***	0.141**	-0.097	-0.038	0.003	-0.035	-0.142**	0.249***
	(0.070)	(0.059)	(0.059)	(0.064)	(0.074)	(0.067)	(0.068)	(0.064)
VII	0.720***	0.271***	-0.049	-0.151*	0.010	0.009	-0.103	0.193**
	(0.089)	(0.077)	(0.089)	(0.080)	(0.098)	(0.091)	(0.105)	(0.080)

Unemployed	0.681***	0.228***	-0.114	-0.093	-0.028	0.015	-0.088	0.122
	(0.093)	(0.078)	(0.076)	(0.080)	(0.085)	(0.082)	(0.084)	(0.077)
Parental education								
(Ref. University)								
Upper secondary	0.087***	0.129***	-0.040	-0.064*	0.073*	-0.012	0.060*	0.043
	(0.033)	(0.031)	(0.035)	(0.034)	(0.038)	(0.031)	(0.035)	(0.032)
Lower secondary	0.167***	0.172***	-0.057	-0.075	0.101*	-0.077*	0.042	0.017
	(0.051)	(0.044)	(0.053)	(0.049)	(0.053)	(0.044)	(0.050)	(0.049)
Obs.	6,114	6,114	6,114	6,114	6,114	6,114	6,114	6,114

Tab A5 – Estimates presented in Fig 3: Average partial/marginal effects, standard errors and levels of statistical significance from binomial logistic regression models predicting enrolment at university

		All tracks	Academic	Technical	Vocational
Independent variables of interest					
	Econ. deprivation	-0.013***	-0.015***	-0.012	-0.021*
		(0.005)	(0.006)	(0.010)	(0.012)
	Relative risk aversion	-0.024***	-0.013*	-0.049***	-0.002
		(0.006)	(0.007)	(0.012)	(0.015)
	Per. Returns	0.039***	0.018***	0.067***	0.042***
		(0.005)	(0.006)	(0.010)	(0.012)
	Exp. Wage returns	0.015***	0.014**	0.028**	-0.002
		(0.005)	(0.007)	(0.012)	(0.011)
	Per. difficulty	0.008	0.008	0.014	0.006
		(0.005)	(0.006)	(0.011)	(0.013)
	Exp. Prob. success	0.025***	0.005	0.064***	0.014
		(0.005)	(0.006)	(0.012)	(0.012)
	Exp. Direct costs	-0.015***	-0.009*	-0.019**	-0.035***
		(0.004)	(0.005)	(0.009)	(0.011)

	Per. Indirect costs	-0.048***	-0.023***	-0.093***	-0.020*
		(0.005)	(0.006)	(0.010)	(0.011)
Control variables					
Social class of origin (Ref. I+II)	IIIa	-0.037**	-0.031**	-0.040	-0.027
		(0.015)	(0.013)	(0.032)	(0.057)
	IV	-0.074***	-0.043**	-0.111***	-0.067
		(0.016)	(0.018)	(0.034)	(0.054)
	V+VI	-0.077***	-0.076***	-0.107***	-0.032
		(0.018)	(0.021)	(0.036)	(0.057)
	IIIb	-0.067***	-0.018	-0.111**	-0.078
		(0.023)	(0.026)	(0.049)	(0.059)
	VII	-0.090***	-0.078*	-0.073	-0.139**
		(0.029)	(0.042)	(0.055)	(0.063)
	Unemployed	-0.085***	-0.085**	-0.130**	-0.022
		(0.029)	(0.042)	(0.051)	(0.084)
Parental education (Ref. University)	Upper secondary	-0.045***	-0.028**	-0.086**	-0.033
		(0.015)	(0.013)	(0.036)	(0.049)

	Lower secondary	-0.102***	-0.077***	-0.137***	-0.122**
		(0.019)	(0.025)	(0.041)	(0.051)
	Treatment	-0.021*	-0.010	-0.018	-0.050
		(0.011)	(0.013)	(0.024)	(0.032)
	Female	0.006	-0.021	-0.003	0.086***
		(0.012)	(0.013)	(0.023)	(0.027)
	Born abroad	-0.026	-0.044	0.013	-0.060*
		(0.023)	(0.031)	(0.044)	(0.035)
Province (Ref. Bologna)	Milan	0.012	-0.016	0.100**	-0.014
		(0.020)	(0.019)	(0.047)	(0.042)
	Salerno	-0.024	-0.038*	0.008	-0.027
		(0.023)	(0.021)	(0.051)	(0.049)
	Vicenza	0.012	-0.038*	0.108**	-0.147***
		(0.022)	(0.023)	(0.045)	(0.048)
Lower secondary graduation mark (Ref. Pass)	Good	0.037**	0.064**	0.023	0.036
		(0.017)	(0.031)	(0.031)	(0.028)
	Vey Good	0.049***	0.076**	0.012	0.040
		(0.019)	(0.031)	(0.035)	(0.039)
	Excellent	0.063***	0.086***	0.025	0.161**
		(0.023)	(0.033)	(0.049)	(0.080)

Track (Ref. Lyceum, classical)	Lyceum, scientific	-0.003	-0.006		
		(0.025)	(0.017)		
	Lyceum, foreign languages	-0.090***	-0.056**		
		(0.035)	(0.026)		
	Other general curriculum	-0.163***	-0.097***		
		(0.038)	(0.030)		
	Technical, Business	-0.259***			
		(0.030)			
	Technical, industrial	-0.300***		-0.026	
		(0.035)		(0.032)	
	Vocational, business	-0.494***			
		(0.041)			
	Vocational, industrial	-0.464***			0.027
		(0.046)			(0.029)
	Mark in Italian at the end of previous year	0.024***	0.019***	0.035***	0.022*
		(0.006)	(0.007)	(0.013)	(0.014)
	Mark in mathematics at the end of previous year	0.025***	0.017***	0.052***	0.001
		(0.005)	(0.005)	(0.010)	(0.010)

Repetition of school year	-0.044***	-0.057***	-0.043*	-0.025
	(0.014)	(0.019)	(0.026)	(0.030)
Conditional advancements to next grades	-0.031***	-0.034***	-0.040*	-0.007
	(0.011)	(0.012)	(0.024)	(0.025)
Parents' academic support	-0.005	0.009*	-0.007	-0.035***
	(0.005)	(0.005)	(0.011)	(0.013)
Family socio-cultural capital	0.001	-0.006	0.004	0.031**
	(0.006)	(0.006)	(0.014)	(0.015)
Student's cultural capital	0.024***	0.008	0.062***	0.012
	(0.006)	(0.006)	(0.013)	(0.012)
School enjoyment	0.015***	0.010***	0.021***	0.015*
	(0.003)	(0.003)	(0.006)	(0.008)
Observations				

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Additional analyses

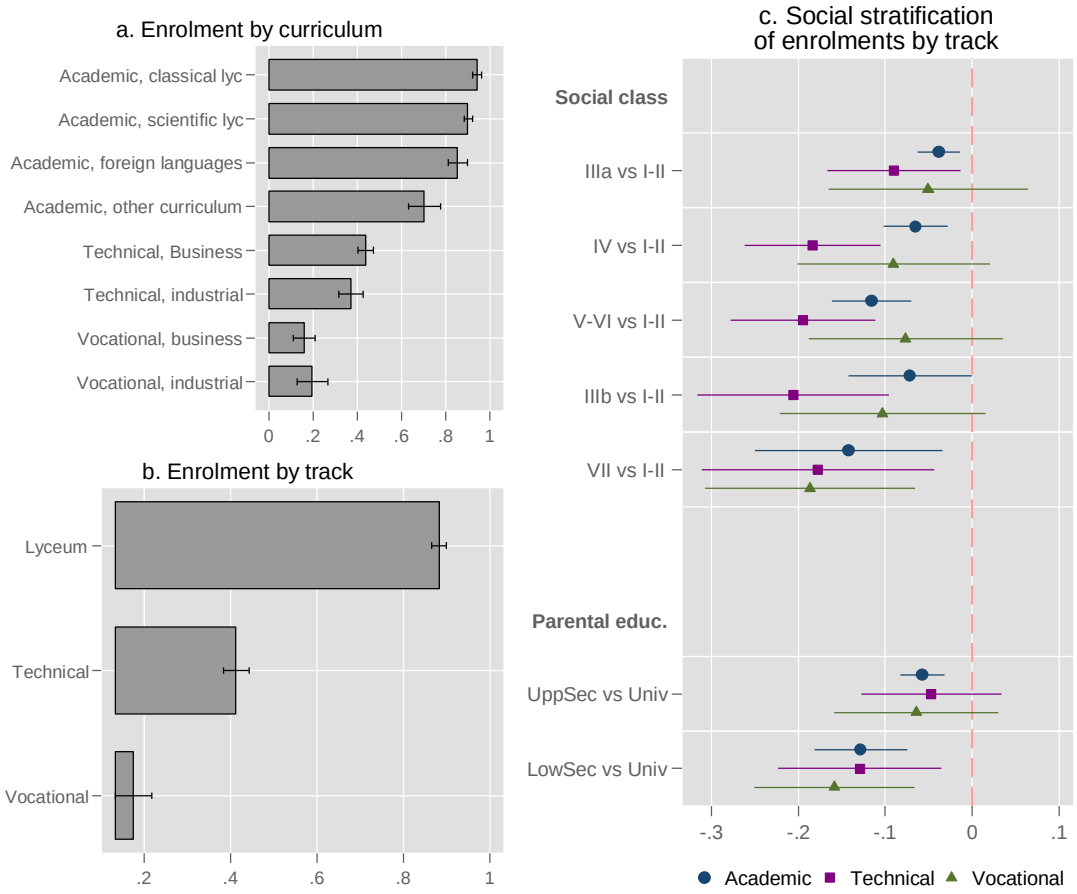

Figure A2 – Proportion of upper secondary graduates enrolled at university by curriculum (graph a) and school track (graph b) and average partial effects from binomial logistic regression predicting enrolment at university according to social background variables by track (graph c).

Table A6 – *KHB decomposition: effects of upper secondary track (APE) and % accounted for by the rational choice indicators and other mediators*

	Technical vs Academic	Vocational vs Academic
APE and SE		
Reduced model	−0.315***	−0.503***
	(0.018)	(0.028)
Full model	−0.219***	−0.416***
	(0.019)	(0.029)
Difference	−0.096***	−0.087***
	(0.000)	(0.000)
% explained		
Econ. deprivation	0.0	0.4
Relative risk aversion	3.6	1.4
Perc. Returns	3.1	3.0
Exp. Wages	1.2	0.6
Perc. Difficulty	−0.3	−0.4
Exp. Prob. of success	2.8	2.6
Exp. Direct costs	0.6	0.7
Perc. Indirect costs	8.1	5.3
Total % explained by rational choice indicators	**19.2**	**13.6**
Previous achievement	−1.5	−3.4

Cultural/Social capital	3.2	1.6
School enjoyment	1.3	0.2
Total % explained by all mediators	***22.1***	***11.9***
Observations	6,114	6,114

Table A7 – *KHB decomposition (APE): % accounted for by the rational choice indicators by track*

	Academic		Technical		Vocational	
	Social class of origin					
	IIIa vs I-II	Other classes vs I-II	IIIa vs I-II	Other classes vs I-II	IIIa vs I-II	Other classes vs I-II
APEs and SE						
Reduced model	-0.052***	-0.132***	-0.083***	-0.218***	-0.082	-0.157***
	(0.011)	(0.015)	(0.031)	(0.030)	(0.067)	(0.059)
Full model	-0.037***	-0.078***	-0.050	-0.142***	-0.050	-0.110*
	(0.012)	(0.014)	(0.032)	(0.031)	(0.065)	(0.057)
Difference	-0.015	-0.054	-0.033	-0.076	-0.031	-0.047
% explained						
Econ. deprivation	7.4	6.1	13.0	-0.5	17.4	-0.1
Relative risk aversion	4.0	3.6	-1.2	1.0	-0.9	3.3
Perc. Returns	1.3	2.5	-1.5	-0.7	0.1	-3.9
Exp. Wage returns	3.5	1.7	-1.7	13.3	3.5	0.6
Perc. difficulty	-1.5	-0.5	-4.0	0.2	-12.5	0.5
Exp. Prob. of success	1.5	1.1	22.9	0.6	0.8	4.8
Exp. Direct costs	-0.7	-0.3	0.2	-2.9	3.5	0.4
Perc. Indirect costs	6.6	5.2	1.1	0.6	6.5	-1.5

Total % explained by rational choice indicators	**22.1**	**19.4**	**28.8**	**11.6**	**18.4**	**4.1**
Observations	3,274	3,274	1,975	1,975	865	865
	Parental education					
APEs and SE						
Reduced model	-0.074***	-0.200***	-0.123***	-0.250***	-0.093*	-0.193***
	(0.011)	(0.027)	(0.036)	(0.039)	(0.053)	(0.052)
Full model	-0.043***	-0.116***	-0.115***	-0.195***	-0.053	-0.155***
	(0.012)	(0.025)	(0.036)	(0.041)	(0.052)	(0.051)
Difference	-0.031	-0.085	-0.009	-0.055	-0.040	-0.037
% explained						
Econ. deprivation	6.2	4.7	-3.6	-0.5	18.3	-1.6
Relative risk aversion	5.8	3.3	0.6	0.3	0.1	2.2
Perc. Returns	2.8	1.3	-1.1	1.0	-2.1	-1.0
Exp. Wage returns	2.9	1.3	-2.7	3.0	1.4	0.2
Perc. difficulty	-1.1	-0.5	2.3	0.1	-1.3	0.5
Exp. Prob. of success	1.3	1.1	-0.9	1.6	1.4	4.1
Exp. Direct costs	0.1	-0.3	0.7	-1.7	0.3	0.2
Perc. Indirect costs	6.3	4.6	1.9	0.2	5.4	-0.9

Total % explained by rational choice indicators	**24.3**	**15.5**	**-2.8**	**4.0**	**23.5**	**3.7**
Observations	3,274	3,274	1,975	1,975	865	865

Robustness checks

Analytical sample: Analysis on the subsample of non-treated individuals

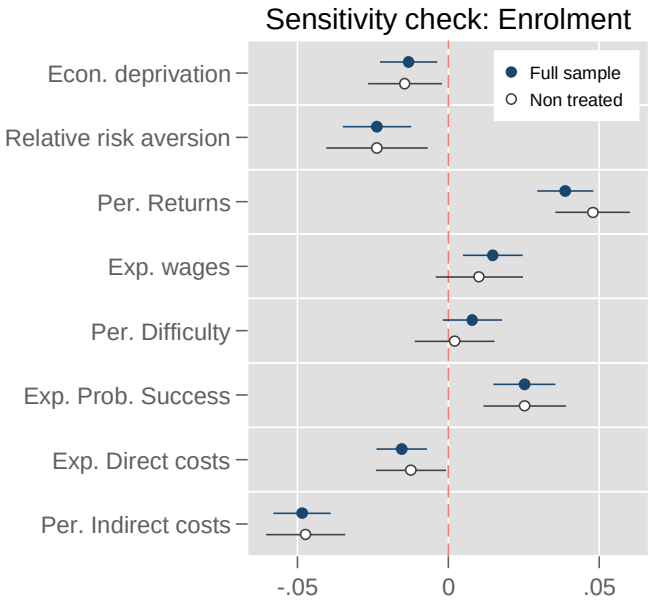

Figure A3 - Sensitivity check comparing estimates obtained on the full sample and on the subsample of individuals who were not exposed to the experiment. Logistic regression predicting university enrolment one year after upper secondary diploma: average partial effects and 95% confidence intervals of rational choice indicators.

Note: the models include all the control variables. Weighted estimates

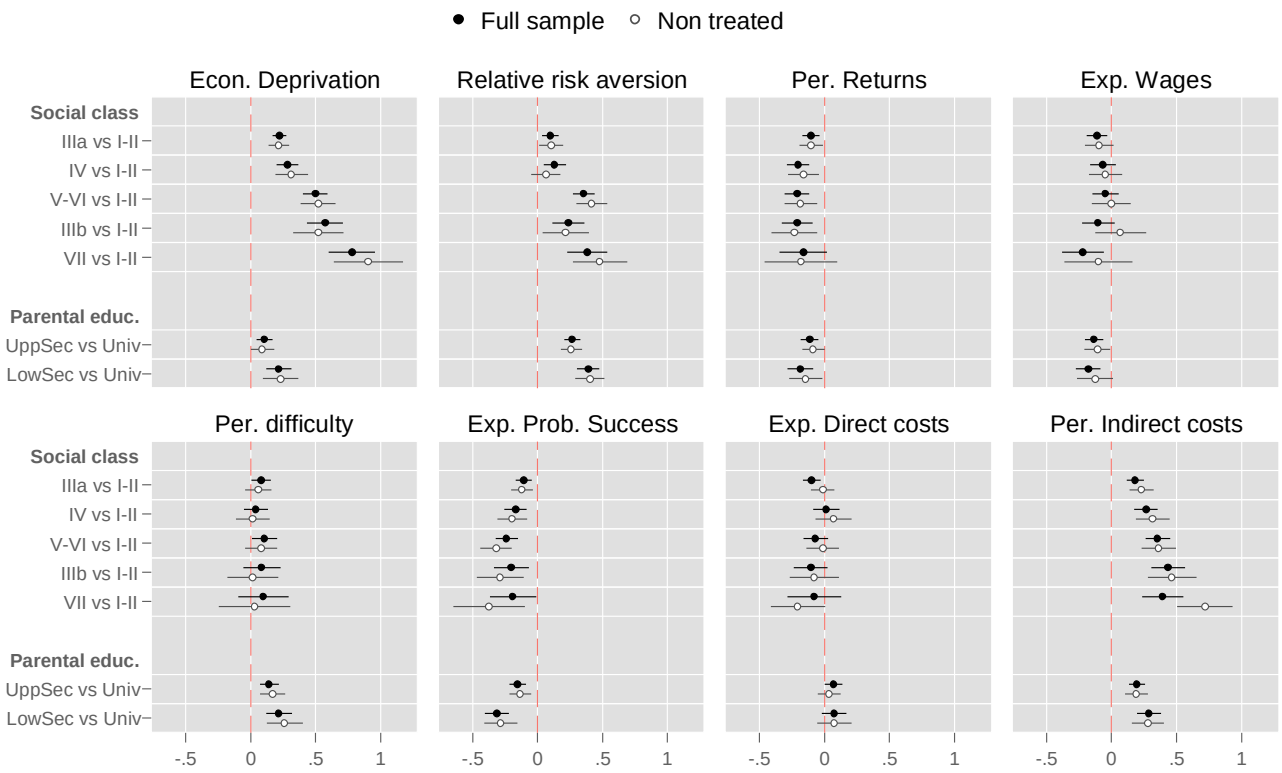

Figure A4 - Sensitivity check comparing estimates obtained on the full sample and on the subsample of individuals who were not exposed to the experiment. OLS linear regression predicting the indicators measuring rational choice mechanisms: average partial effects and 95% confidence intervals of social background variables.

Note: the models include all the control variables

Outcome: enrolment in wave 4 (one year and a half after upper secondary graduation)

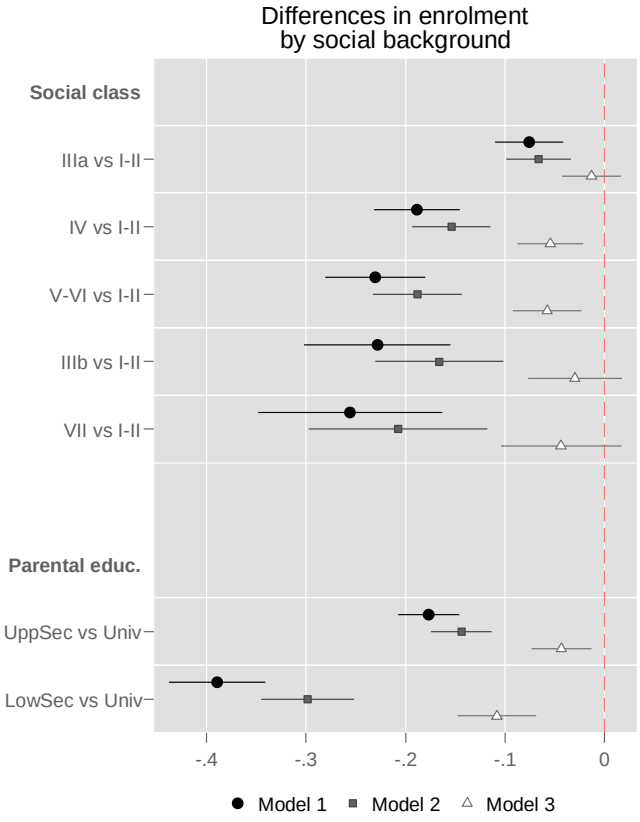

Figure A5 – Average partial effects from binomial logistic linear regression predicting enrolment at university in wave 4 (one year and a half after upper secondary graduation) to social background variables.

Note: Model 1 includes only parental education and social class of origin and basic sociodemographic variables, Model 2 adds final marks in lower secondary education, Model 3 adds the mediator variables.

Table A8 – *KHB analysis: % of social inequalities in enrolment at university in wave 4 (one year and half after upper secondary graduation, unconditional analysis) explained by rational choice indicators*

	Social class		Parental education	
	IIIa vs I-II	Other classes vs I-II	UppSec vs Univ	LowSec vs Univ
Rational choice indicators				
Econ. deprivation	3.0	2.5	1.8	1.9
Relative risk aversion	4.3	3.8	4.3	3.7
Perc. returns	5.1	4.1	3.2	3.1
Exp. Wages	1.7	0.8	1.0	0.7
Perc. difficulty	-0.2	-0.1	-0.2	-0.2
Exp. Probability of success	3.1	2.6	2.2	2.3
Exp. Direct costs	-1.6	0.2	0.6	0.5
Perc. Indirect costs	11.3	8.3	8.2	6.7
Total % explained	**26.7**	**22.2**	**21.1**	**18.7**

Indicators: Alternative definitions of rational choice indicators

As regards the internal validity of the relative risk aversion index, measured as the willingness to accept a lower status job, one could wonder whether all students could meaningfully score the different occupations. It should be noted that the student questionnaire has been extensively pretested to make sure that students understood the questions: as regards the scoring of different occupations used for the RRA index, from an initially larger list of occupations, we retained only the items that could be understood easily by all students during the pretest. Moreover, the evidence from a recent Italian survey on the perceived desiderability of occupations indicates that these occupations are placed in the middle ranks of the occupational hierarchy both by the adult population and by the youth (Meraviglia 2012). Finally, it is reassuring that the pattern of missing values does not significantly vary by social origins nor by tracks. It should be noted that in Italy upper secondary graduates from all tracks have access to all fields of study so that, for instance for a graduate of a technical track a BA in law and a career as lawyer are not particularly implausible destinations.

References

Meraviglia, C. (2012), *La scala immobile*, Bologna, Il Mulino.

Table A9 – *KHB decomposition of secondary effects (APE) of social class of origin (upper panel) and parental education (lower panel): % accounted for by the rational choice indicators. Alternative definition of some indicators (*)*

	Social class		Parental education	
	IIIa vs I-II	Other classes vs I-II	UppSec vs Univ	LowSec vs Univ
Econ. deprivation	3.0	2.6	2.1	2.2
Relative risk aversion*	3.4	3.0	3.9	2.9
Per. Returns	4.6	3.9	3.9	3.2
Exp. Wage returns*	1.5	0.8	1.1	0.7
Per. difficulty	-0.8	-0.4	-0.7	-0.5
Exp. Prob. Success*	3.6	2.9	3.0	2.9
Exp. Direct costs	-0.9	0.0	0.4	0.2
Per. Indirect costs	9.9	7.7	8.3	6.4
Total % explained by RC indicators	**24.3**	**20.5**	**22.0**	**18.0**

Note 1: we use the highest value of satisfaction among the items for the occupations that do not require a university degree as a measure of Status maintenance. For the Expected wage and Expected chances of success we used the respondent's first estimate and not the average of the first three options.

Note 2: the estimates are adjusted for the control variables (see table 1) and lower secondary final marks. Additional mediators included in the models are: indicators of academic proficiency in upper secondary education, type of school track, and indicators of cultural and social capital.

Table A10 – KHB decomposition of secondary effects of social class of origin (upper panel) and parental education (lower panel): % accounted for by two indicators of risk aversion: willingness to accept a lower class job and aspirations for upper class jobs.

	All tracks		Academic		Technical		Vocational	
	IIIa vs I-II	Other classes vs I-II	IIIa vs I-II	Other classes vs I-II	IIIa vs I-II	Other classes vs I-II	IIIa vs I-II	Other classes vs I-II
Relative risk aversion	2.6	2.7	1.6	2.0	2.4	2.4	3.9	3.3
UCJ aspiration	0.4	0.3	0.0	0.0	-0.1	0.0	8.3	1.0
	UppSec vs Univ	LowSec vs Univ	UppSec vs Univ	LowSec vs Univ	UppSec vs Univ	LowSec vs Univ	UppSec vs Univ	LowSec vs Univ
Relative risk aversion	3.3	2.8	3.0	2.1	3.5	2.0	-2.8	0.2
UCJ aspiration	0.3	0.3	0.0	-0.1	-0.1	-0.1	10.2	3.1

Note: UPC = upper class job

Control variables and mediators

Table A11 – *KHB decomposition estimating secondary effects of social class of origin (APE) also using academic performance in upper secondary education*

	Social class		Parental education	
	IIIa vs I–II	Other classes vs I–II	UppSec vs Univ	LowSec vs Univ
Econ. deprivation	4.4	4.5	3.7	4.0
Relative risk aversion	3.7	3.8	4.9	4.0
Perc. returns	4.8	4.3	3.8	3.1
Exp. Wage returns	2.1	0.6	1.2	0.6
Perc. difficulty	-0.9	-0.4	-1.1	-0.7
Exp. prob. of success	2.9	2.4	2.0	2.5
Exp. direct costs	-1.9	-0.4	0.5	0.1
Perc. indirect costs	10.2	7.7	7.5	5.3
Total % explained by rational choice indicators	**25.3**	**22.3**	**22.6**	**18.9**
Observations	6,114	6,114	6,114	6,114

Note: the estimates are adjusted for the socio−demographic control variables (see table 1) and for lower secondary school final marks.

Table A12 – *KHB decomposition estimating secondary effects of social class of origin (APE) not controlling for track of diploma in upper secondary education*

	Social class		Parental education	
	IIIa vs I–II	Other classes vs I–II	UppSec vs Univ	LowSec vs Univ
Econ. deprivation	3.9	3.4	2.7	2.9
Relative risk aversion	6.2	5.8	6.7	5.8
Perc. returns	6.0	5.0	4.7	4.3
Exp. Wage returns	3.1	1.3	1.8	1.3
Perc. difficulty	-0.5	-0.3	-0.6	-0.5
Exp. prob. of success	5.9	4.8	4.6	4.9
Exp. direct costs	-1.3	0.0	0.5	0.3
Perc. indirect costs	13.3	10.3	10.6	9.0
Total % explained by rational choice indicators	**36.5**	**30.4**	**31.0**	**28.1**
Observations	6,114	6,114	6,114	6,114

Note: the estimates are adjusted for the socio−demographic control variables (see table 1) and for lower secondary school final marks.

Weighting: predictive model to create inverse probability weights

Table A13 – Binomial logistic regression predicting participation to wave 3: odds ratios and related (exponentiated) standard errors and levels of statistical significance

	OR(SE)		OR(SE)
Predictors		Female	0.732***
Enrolment in wave 2	1.499***		(0.063)
	(0.158)	Born abroad	0.610***
Intention to enrol in wave 1	0.924		(0.092)
	(0.104)	Milan	1.399***
Econ. deprivation	0.988		(0.169)
	(0.038)	Salerno	0.761**
Relative risk aversion	1.099**		(0.100)
	(0.047)	Vicenza	0.980
Per. Returns	1.033		(0.135)
	(0.042)	Good	0.765**
Exp. Wage returns	1.012		(0.099)
	(0.040)	Vey Good	0.801
Per. difficulty	1.013		(0.113)
	(0.039)	Excellent	0.674**
Exp. Prob. success	1.004		(0.116)
	(0.044)	Lyceum, scientific	0.991
Exp. Direct costs	1.024		(0.135)
	(0.038)	Lyceum, foreign languages	0.674**
Per. Indirect costs	-0.971		(0.122)
	(0.043)	Other general curriculum	1.107
IIIa	1.141		(0.232)

	(0.124)	Technical, Business	0.813
IV	0.934		(0.136)
	(0.125)	Technical, industrial	1.188
V+VI	1.065		(0.236)
	(0.153)	Vocational, business	0.616**
IIIb	0.828		(0.122)
	(0.152)	Vocational, industrial	0.739
VII	1.470		(0.155)
	(0.373)	Mark in Italian at the end of previous year	1.054
Unemployed	1.124		(0.048)
	(0.260)	Mark in mathematics at the end of previous year	1.034
Missing	0.797		(0.037)
	(0.268)	Repetition of school year	0.964
Upper secondary	1.182		(0.100)
	(0.122)	Conditional advancements to next grades	0.764***
Lower secondary	1.040		(0.070)
	(0.145)	Parents' academic support	1.021
Treatment	1.118		(0.041)
	(0.083)	Family socio-cultural capital	1.006
			(0.044)
		Student's cultural capital	1.037
			(0.047)
		Student appreciation of school experience	1.034
			(0.023)
		Constant	3.311***

*** p<0.01, ** p<0.05, * p<0.1

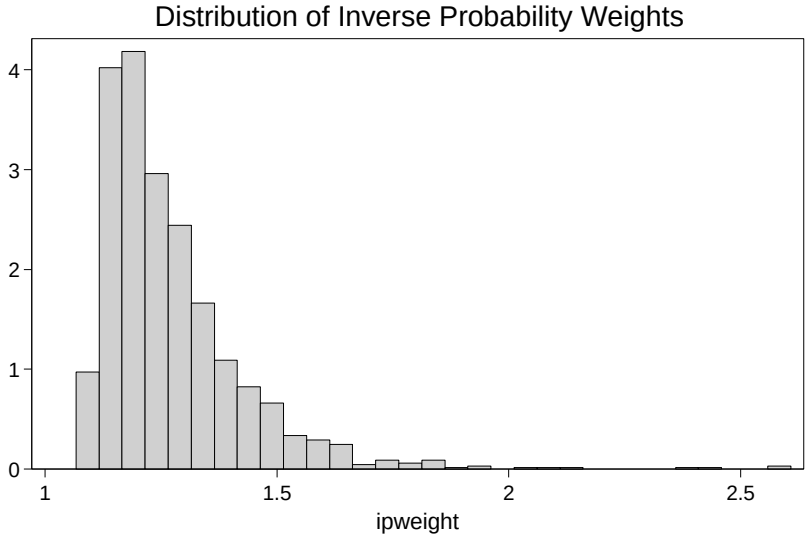

Figure A6 – Histogram of the distribution of inverse probability weights used to correct for panel attrition

Complete case analysis instead of weighted analysis

Table A14 – KHB decomposition with complete case analysis instead of weighted analysis

	Social class		Parental education	
	IIIa vs I-II	Other classes vs I-II	UppSec vs Univ	LowSec vs Univ
Rational choice indicators				
Econ. deprivation	2.9	2.8	2.2	2.4
Relative risk aversion	3.3	3.2	4.0	3.2
Perc. returns	4.6	4.2	3.9	3.5
Exp. Wages	1.6	0.9	1.2	0.8
Perc. difficulty	-0.8	-0.5	-0.7	-0.6
Exp. Probability of success	3.5	3.1	3.0	3.2
Exp. Direct costs	-0.8	0.0	0.4	0.2
Perc. Indirect costs	9.8	8.3	8.4	7.2
Total % explained	**24.1**	**22.0**	**22.4**	**19.9**