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Social Inequalities in Higher Education Participation in Trentino from the Bologna Process to the Great Recession (2000-2012)

*Loris Vergolini**

Abstract: In this paper, we analyse the role of social origins in the shaping of university participation in the province of Trento (North-East of Italy) from 2000 to 2012. This long-term view gives us the chance to test the role played by the Bologna process and by the economic crisis. More precisely, this setting allows us to analyse its effects on inequality of educational opportunity in the face of two opposite situations. The first, subsequent to the Bologna process, is characterised by a huge increase in the enrolment rate at the university. In the second situation, subsequent to the economic crisis, a huge decline in higher education participation can be observed. Using data on upper secondary school graduates in the province of Trento and applying logistic models, we find that inequality of educational opportunity tends to diminish during educational expansion, while it increases with the persistence of the economic crisis.

Keywords: higher education, economic crisis, social inequalities, Bologna process

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Introduction

The increased participation in higher education and the reduction of inequality of educational opportunity (IEO) is a widely debated topic in many advanced countries due to the positive externalities that a higher level of education can have on the entire society (Hanushek & Woessmann, 2010). Because the enrolment rate in Italian universities is much lower with respect to other EU countries (OECD 2014) and because IEO is still a persistent phenomenon (Marzadro & Schizzerotto, 2014), the Italian government implemented the Bologna process to enhance university participation and reduce social inequalities. At the same time, the trend in enrolment rate could also be affected by the economic situation.

Given these premises, this paper contributes to the existing literature analysing IEO in the access to tertiary education from 2000 to 2012¹ using a dataset on upper secondary graduates in the province of Trento (North-East of Italy). As mentioned above, the considered time span is of particular interest as it comprises the reform of the Italian university under the Bologna process (after 2001) and the incumbency of the economic crisis (from 2009 onwards). This means that we are in the position to test what happens to IEO under different circumstances. More precisely, after the Bologna process there was a huge expansion in university participation (Bondonio, 2007; Cappellari & Lucifora, 2009; D'Hombres, 2007; Di Pietro & Cutillo, 2008; Argentin & Triventi 2011; Di Pietro, 2012). On the other side, the period of the economic crisis has been characterised by a decrease in the transition rate from upper secondary school to university.² Moreover, our analysis considers both the vertical (i.e., the university enrolment probability) and the horizontal (i.e., the choice of the field of study) dimension of IEO. Although this study is focused on a particular area, with all the problems it entails regarding the generalisation of the results, it constitutes, to the best of our knowledge, the first analysis on inequality in relation to educational choice at the university level in Italy, considering the influence of both the Bologna process and the economic crisis.

The main limitation of the paper lies in the possibility to use data for only one Italian province. This means that, as it will be better explained in the fourth section, we rely only on a before-after approach that permit us to speak only about association instead of causation.

This article is organised as follows. In the next section, we describe the Italian educational system and we supply an overview of the specific context of the province of Trento. In section 3, we present the theoretical framework

¹ As better explained in section 4, the survey that we used covers the period from 2000 to 2012 with the only exceptions being 2001, 2002 and 2009 for which no data are available.

² In the next section we support this statement with a full set of descriptive statistics about university participation in Italy and in the province of Trento.

from which a set of hypotheses is derived. We then describe the data, variables and methods (section 4) and discuss the main empirical results (section 5). The last section is devoted to some conclusive remarks.

The Italian educational system and the province of Trento

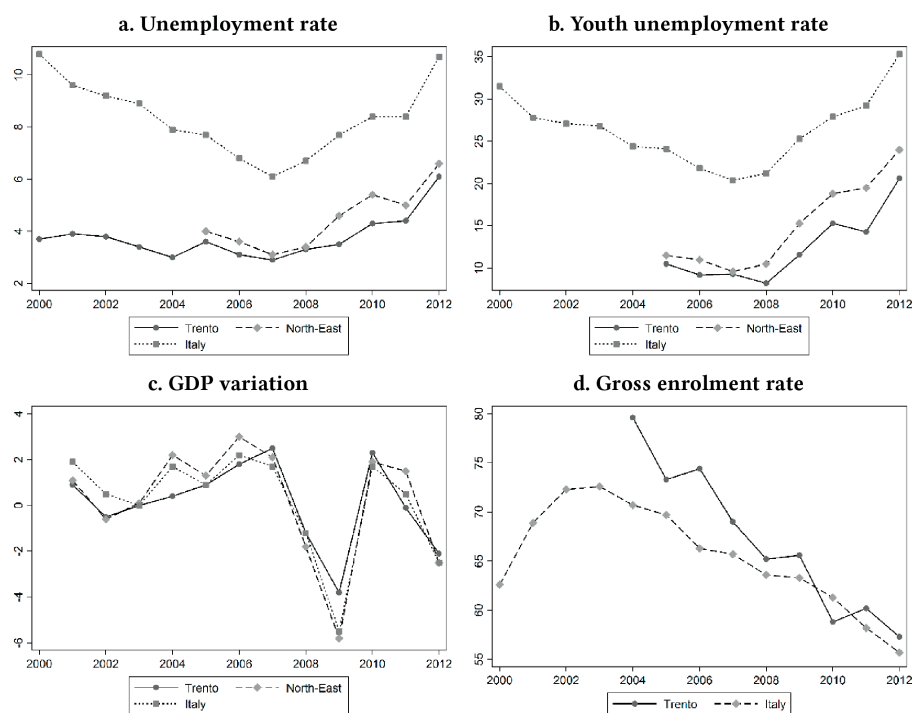
The Italian educational system³ is divided into four different stages: primary, lower secondary, upper secondary and tertiary. Primary school corresponds to Isced 1 (International Standard Classification of Education). It lasts for five years and it offers the same curricula to all students. Usually, primary school is intended for children from six to eleven years of age. The secondary stage includes two levels. The lower level (Isced 2) is also compulsory and undifferentiated and it lasts three years. Upper secondary school (Isced 3) presents the choice between three different tracks: the academic (*liceo*), the technical (*istituto tecnico*) and the vocational track (*istituto professionale*). Each track lasts five years and it is concluded by a final exam known as *Esame di maturità*.⁴ All students who pass this final exam can enrol at a university independently of which track they completed. Tertiary education (Isced 5A) in Italy was dramatically changed in 2001 with the implementation of the Bologna process. The old system was unitary, undifferentiated and very selective. In fact, it was characterised by its length (4 to 6 years according to the chosen field of study) and by requiring long courses with high workloads. The Bologna process, approved in 1999 and fully implemented in 2001, tried to change this state of affairs to manage the increased heterogeneity of students that began to enter the Italian university system. As a result of this reform, the old system was replaced by a sequential system comprising a 3-year Bachelor's (*laurea triennale*) degree and a 2-year Master's (*laurea magistrale*) degree, which grants access to doctoral programmes that usually take three years to complete. Moreover, another relevant feature of the Italian version of the Bologna process was the definition of the first two cycles (Bachelor's and Master's) in terms of credits. In general, one academic year corresponds to 60 credits, which are equivalent to 1,500 hours of study. The workload allotted to attending the lessons and preparing for the exams cannot exceed this cap. The important difference relative to the old system is that since 2001, the expected student workload is clearly defined and constrained. The overall result of this reform was that the time and effort required to complete university studies decreased substantially, making tertiary education less selective at least for the first cycle (Cappellari & Lucifora, 2009).

³ For a more detailed description of the Italian educational system see the Eurydice page (<https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Italy:Overview>).

⁴ In Italy, there are also some vocational schools that offer three-year qualifications, but these qualifications do not grant access to university.

The analyses presented in the next sections are based on data from the province of Trento. We rely on these data because long series of data are not available for the whole country.⁵ Given the focus on this particular area, we provide some information about the social and economic context of this province as a contrast with the rest of the country. First, it should be stressed that the province of Trento is located in the North-East of Italy and enjoys a large degree of autonomy in the field of welfare, health and education. This autonomy, however, did not reflect in changes in the implementation of the Bologna process. In fact, this reform has been implemented uniformly at a national level.

Figure 1. Italy, North-East and province of Trento at a glance: some macro indicators.



Note: Panel a reports the general unemployment rate; panel b shows the unemployment rates for people aged 15–24; panel c reports the variation in real GDP, and in panel d gross enrolment rates are calculated as the ratio between students enrolled at the university in year $t+1$ —independently of the year in which they obtained a high-school diploma— and high school graduates in year $t-1/t$.

⁵ The Italian Statistical Office (ISTAT) conducts a survey on Italian upper secondary school graduates every three years. Currently, data are available for the following cohorts: 1995, 1998, 2001, 2004, 2007 and 2011. The main limitation of these data is that they are not collected yearly and that the information on field of study are not released in a detailed way in each wave.

In general, the province of Trento is a small but well developed area. In fact, we can see how the general unemployment rate is much lower in this area than in the rest of the country, even if it is increasing over time, particularly after the economic crisis (Figure 1, panel a). The same picture emerges when we look at youth unemployment rate (Figure 1, panel b). It should be stressed that differences between the province of Trento and the surrounding regions (North-East) are less evident, these geographical areas showing some similarities. On the other hand, GDP variation rate is very similar all over the country and the trend is still negative for the last years (Figure 1, panel c). Eventually, university enrolment began to decrease beginning in 2004, both in the province of Trento and in Italy (Figure 1, panel d). In general, the economic crisis became evident in the province of Trento beginning in 2009. Moreover, it seems that the economic crisis has been less severe in the province of Trento, leading us to estimate a lower bound of the crisis' effect with respect the rest of the country.

Previous study and theoretical framework

In Italy, the literature on the IEO trend over time is very rich, in particular concerning the vertical dimension. Given the aims of this paper, we review the main contributions that have focused their attention on IEO in terms of university participation in Italy. Previous studies that have looked at long-term IEO trends have found a stability in the relationship between students' social origins and enrolment chances (Triventi & Trivellato, 2009; Ballarino & Schadee, 2010; Barone, Luijkx & Schizzerotto, 2010; Marzadro & Schizzerotto, 2014) or only a modest decrease (Recchi, 2007). The studies that showed a certain degree of IEO reduction are those which focused their attention on inequality trends in more recent periods or after the implementation of the Bologna process (Cappellari & Lucifora, 2009; Di Pietro, 2012; Ballarino & Panichella, 2014).⁶ Regarding the relationship between students' social origin and choice of field of study, it seems clear that students from higher social background tend to choose more profitable fields of study (Pisati, 2002; Triventi, 2013; Vergolini & Vlach, 2017) and that IEO increased with the expansion caused by the Bologna process (Argentin & Triventi, 2011).

The theoretical perspective adopted by previous studies is based on rational action theory (RAT) through the mechanism of relative risk aversion (Boudon, 1974; Breen & Goldthorpe, 1997). According to this approach, enrolment probability is influenced by cost-benefit calculations made by students and their families. The idea is that if expected benefits exceed the various costs, then stu-

⁶ While it is well accepted that the Bologna process in Italy has increased enrolment rate, the same is not true for its effect on IEO. In fact, Argentin & Triventi (2011) have not observed this reduction.

dents decide to enrol. This approach predicts that IEO is generated mainly by economic constraints that children of lower socio-economic background have to face. At the same time, having parents with low education levels means that they cannot help in the supply of reliable information about costs and economic returns of university participation (Abbiati & Barone, 2015).

The same framework can also be applied to the choice of the field of study once students have decided to enrol. More precisely, lower-class children might think that less demanding fields of study or shorter courses will lower their chances of dropping out. At the same time, students from higher social-backgrounds could be more willing to enrol in more demanding and remunerative fields of study to avoid downward social mobility. The choice of a given field of study is also influenced by knowledge of the functioning of the higher education system. Obviously, students whose parents are highly educated will also have more information about the profitability and the workload of a given field of study (Bourdieu, 1979; Bourdieu & Passeron, 1990).

To sum up, we can see education choices as a function of: i) costs (both direct and indirect); ii) expected returns on the labour market; and iii) probability of success. The last point brings into play the previous school career: students with higher grades and from an academic track have more probability to enrol at university. At the same time, the expectations about possible success at university could be influenced by parental education. Indeed, students whose parents reached a university degree could have a more realistic idea about the difficulty that they will encounter during tertiary education.

Following an approach based on RAT, we analyse the association between institutional context and the economic situation on one side and IEO in its vertical and horizontal dimension on the other side.

We will begin our argument with the vertical dimension of IEO. As described in the previous section, the Bologna process has reduced the costs of participation by having simplified the Italian university system and having shortened the duration of the courses. Therefore, we expect to find not only an overall increase in probability of enrolment but also that this growth has also been greater for individuals from lower socio-economic backgrounds (*Hypothesis 1*).

On the other side, the effects of the economic crisis could go, at least in principle, in two opposite directions. First, the crisis has increased the unemployment rate and so it has reduced the income of families, particularly working class families. This could be translated into an increase of the relative costs connected to university participation thus implying an increase in IEO. This means that we could have a rise in the direct costs that is also exacerbated by the growing trend in tuition fees.⁷ At the same time, the crisis

⁷ For instance, according to MIUR (Italian Ministry of Education) data, from 2001 to 2013

has also raised youth unemployment rate and, in this way, it has caused a decrease in opportunity costs of university participation leading to a reduction in IEO. According to the last argument, university enrolment could be seen as a sort of “parking lot” (the so-called warehouse effect) that students use waiting for an improvement in the economic situation (Barbagli, 1974). The idea is that people from lower socio-economic backgrounds are more likely to opt for working after graduation from upper secondary school.⁸ Hence, the increase in youth unemployment rate could lead them to decide to enrol at the university, at least while the economic situation is not favourable. From this discussion, we can derive two conflicting hypotheses. We refer to the first scenario (increase in IEO) as *Hypothesis 2a* and to the second one (decrease in IEO) as *Hypothesis 2b*. We suppose that the more realistic scenario could be the first one, also because we are in a situation in which the economic returns of tertiary degrees are decreasing (AlmaLaurea 2015) together with an increase in the tuition fees and a decrease in the scholarships (ANVUR 2016). In other words, we believe that the negative effect on enrolment due to the increase in the direct costs and the drop of the economic returns will be stronger than the positive effect played by the decrease of the opportunity costs.

As explained above, the horizontal dimension of IEO regards the association between social background and choice of field of study. In particular, after the Bologna process, Italy, and the province of Trento, has experienced a remarkable educational expansion at the tertiary level. This means that a tertiary degree itself might not be enough to ensure a good occupational position because employers could start to look at the field of study and the type of institution attended (Gerber & Cheung, 2008; Macmillan, Tyler & Vignoles, 2014). It is possible that students from higher social backgrounds will try to maintain their advantages by enrolling in more prestigious and demanding fields of study, according to the effectively maintained inequality (EMI) thesis (Lucas, 2001). The idea behind this concept is that, in a situation of educational expansion, obtaining a degree is no longer sufficient to maintain an advantage in the labour market. Therefore, upper class children will tend to differentiate their choices from a qualitative point of view (i.e., choosing a remunerative field of study). It has to be stressed that, on average, students from higher social backgrounds show always higher probability to enrol in the more remunerative fields of study. EMI's expectations regards the increase in the gap between students from different backgrounds. Given these arguments, and as a result of the introduction of the Bologna process,

average tuition fees per student increased by 41% in public universities, raising from 760 to 1072 Euros (prices adjusted for inflation).

⁸ If we look at the ISTAT survey on Italian upper secondary school graduates, it emerges that, on average, the children of low educated parents have a higher probability of working with respect to the offspring of well educated families (0.56 versus 0.24).

we expect an increase in the association between students' social origins and choice of the most remunerative fields of study (*Hypothesis 3*).

In this case, predictions about the influence of the economic crisis are ambiguous and strictly depend on what happens with variations in the probability of enrolment. If the argument about the increase in direct costs is true and there is a subsequent increase in IEO at the vertical level, we can suppose that there will not be an increase in IEO in the choice of the field of study (*Hypothesis 4a*). The reason for this would be because the distance between the various social groups in enrolment rate has remained stable. Therefore, students from upper social strata do not need to change their educational choices to maintain a competitive advantage. Otherwise, if there is a decrease in IEO in the enrolment probability, individuals from advantaged backgrounds are likely to act according to the EMI thesis and, therefore, could try to overcome the effects of educational expansion by choosing more remunerative and demanding fields of study (*Hypothesis 4b*).

Data, variables and empirical strategy

The data used in this paper come from an ad hoc survey that was been carried out from 2000 to 2012 on the population of upper secondary school graduates in the province of Trento. Because of a funding shortage, it was not implemented in 2001, 2002 and 2008, and it is no longer administered. The fieldwork was carried out by the Department of Sociology and Social Research of the University of Trento using a Computer-Assisted Telephone Interviewing (CATI) procedure. More precisely, the reference population is made up of all the qualified upper secondary school students in a given scholastic year ($t-1/t$) that are entitled to access the university system in the next academic year ($t/t+1$).

The questionnaire collects a rich set of information about the following: a) educational choices (enrolment and field of study); b) socio-demographic characteristics (gender, residence area); c) school career (final exam marks for upper secondary school, grade retention, school track and remedial exams); and f) students' social origins (parental education and parental social class).⁹

The main dependent variables are enrolment probability and, once enrolled, the choice of field of study. Enrolment probability is a dummy variable that assumes a value of "1" if enrolled and "0" otherwise. Field of study is a categorical variable composed of six groups: a) Humanities (arts, languages and educational sciences); b) Social sciences (psychology, social sciences and political sciences); c) Natural Sciences (mathematics, physics, geology, biology and agriculture); d) Economics and technical fields (engineering, ar-

⁹ See the appendix for some descriptive statistics.

chitecture and economics and statistics)¹⁰; e) Liberal professions (medicine and law); and f) Health (subjects related to medicine, such as nursing, physiotherapy and midwifery).¹¹

The main independent variable is parental education coded as follows: a) both parents with a university degree; b) at least one parent with a university degree; c) at least one parent with an upper secondary degree; and d) both parents with less than an upper secondary degree. Following Triventi (2013), we adopted this combination of qualifications to better capture the educational constellation of the family of origin and to differentiate more precisely at the top the distribution of the students' social origins. As control variables we use: sex, marks for the *Esame di maturità*, grade retention, remedial exams, school track and parental social class.¹² The variables regarding school career are intervening variables, so that what we are estimating in this paper is the direct effect of parental education. The idea is to look at the association between parental education and school choices when the mediating role of school career is taken into account. Indeed, a part of the social background differentials in both enrolment and the choice of the field of study are the result of higher performances and better track choices of the children of better off parents.

To estimate the effects of parental education on enrolment probability, we rely on a binomial logistic regression:

$$\ln\left(\frac{p_i}{1-p_i}\right) = \alpha_0 + \beta_1 \cdot ParEdu_i + \delta_1 \cdot Cohort_i + \lambda_1 \cdot (ParEdu \times Cohort)_i + \nu_j \cdot X_i \quad (1)$$

Considering that field of study is a discrete categorical variable assuming six possible values, we modelled the odds that student i falls in the field j ($j = 1, \dots, 5$) as opposed to a baseline field ($j = 6$) using a multinomial logistic regression as follows:

$$\ln\left(\frac{p_{ij}}{p_{i6}}\right) = \alpha_j + \beta_j \cdot ParEdu_i + \delta_j \cdot Cohort_i + \lambda_j \cdot (ParEdu \times Cohort)_i + \nu_j \cdot X_i \quad (2)$$

¹⁰ We opted to include "economics and statistics" in the technical field due to the relevance granted to them by departments in those fields.

¹¹ This classification is slightly different from the one proposed by Ballarino and Bratti (2009), who present the following fields: Hard sciences; Medicine (with health professions); Technical; Hard social sciences; Soft social sciences; Law; Humanities. In the appendix we show that the results using this coding are not so different from the those in our paper.

¹² Unfortunately, parental social class has not been measured following the same procedures in all the waves. Therefore, we are not able to build this variable in a detailed way. Hence, we prefer to use it only as a coded control variable, using a dominance criterion and mimicking the ESEC class scheme (Rose and Harrison 2010), as follows: a) Service class; b) Routine non-manual; c) Self-employed; d) Working class.

In both expressions, α is a constant; β is the vector of coefficients of parental education; δ are the regression coefficients of ten dummy variables for the cohort; λ is an array of coefficients of the interaction of parental education and interview wave; ν is a vector of regression coefficients associated with the control variables. The results for both models are obtained using log-likelihood maximization and are graphically presented in the next section in form of predicted probabilities.

Our empirical strategy is based on a before-after comparison. This means that the changes in the institutional context and in the economic situation are measured only according to the time variable that identifies the cohorts of upper secondary school graduates. This approach has been widely employed in the policy evaluation literature.¹³ Nonetheless, it has been also criticised for its heavy assumptions on the equivalence of the contiguous cohorts of students, and as it supplies reliable estimates only in the short-run. However, this empirical strategy is an appropriate one in our case, as our aim is not to assess the causal impact of the Bologna process and the economic crisis on IEOs, but rather to describe the trends around the time thresholds that identify the periods before and after the events we analyse.

Notably, in our data have been collected information only about people who have reached an upper secondary school qualification of five years. Hence, it is not possible to consider here students who have obtained three-year vocational qualifications. These students are mainly from lower socio-economic backgrounds (Panichella & Triventi, 2014). This means that we are not able to supply unbiased estimates of the association between social origins and educational choices at the tertiary level. However, given the type of selection, we are able to identify a lower bound of the true estimate.

Main results

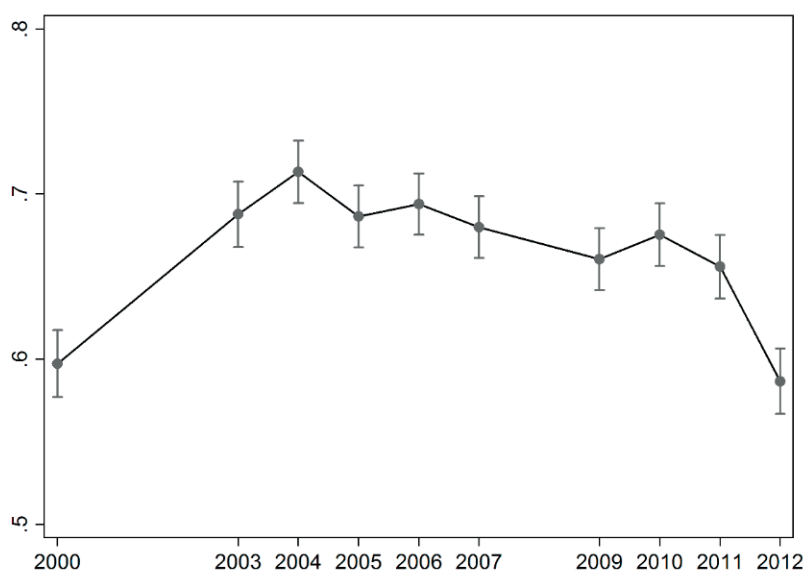
In this section, we present the main findings emerging from the empirical analyses.¹⁴ More precisely, we show the results regarding the trend in IEO enrolment probability and how the association between students' social origins and choice of field of study evolves over time. Before looking at the results coming from the logistic models, it is useful to look at some descriptive statistics about the trend in net enrolment rate in the province of Trento from 2000 to 2012 (Figure 2). As can be observed quite clearly, after the Bologna process there is a remarkable increase in enrolment rate. As is also evident from Figure 1 (panel d), it seems that the decrease in the enrolment rate started before the economic crisis, which reached the province of

¹³ See for example Cappellari and Lucifora (2009) for the effects of the Bologna process on enrolment rates.

¹⁴ The results are presented graphically. See the appendix for the full models.

Trento from 2009 onwards. To explain this evidence, it should be noted that the economic return of a Bachelor's degree is quite unsatisfactory. In fact, at the Italian level, the unemployment rate of graduates holding a Bachelor's degree increased from 11.2% in 2007 to 26.0% in 2013, while their first job salary, in the same period, fell from 1,302 € to 1,013 € (AlmaLaurea 2015). In any case, regarding the net enrolment rate— which is what we use for this study— the dramatic reduction occurs in 2012. Finally, it should be stressed that the decreasing trend is less dramatic than that observed for the gross enrolment rates (Figure 1, panel d). This means that the decline is more relevant for the so-called “delayed students” (i.e., students who do not enrol at the university immediately after obtaining their upper secondary school degree). In other words, while the net enrolment rate is more affected by the persistence of the economic crisis, the decline in gross enrolment rate seems to be much more influenced by other macro characteristics.

Figure 2. Net enrolment rate according to upper secondary school graduation cohort in the province of Trento.

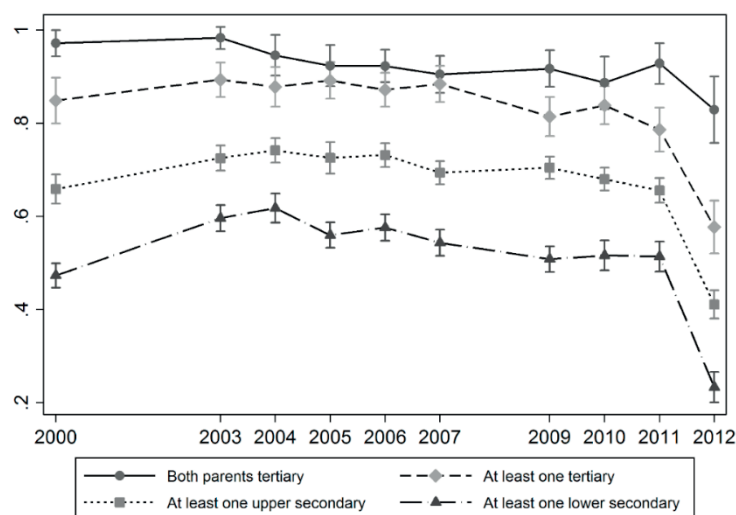


Note: enrolment rate is measured differently with respect to Figure 1 (panel d). In fact, this figure shows a net enrolment rate because we consider those students who enrolled at the university in the year $t/t+1$ conditional on having earned their upper secondary degree in year $t-1/t$.

In figure 3, we report the trend of the (net) enrolment predicted probabilities according to parental education by cohorts. *Hypothesis 1* claims that, after the Bologna process, we should observe a reduction in IEO and, as a consequence, an increase in the enrolment probabilities of students from lower social background with respect to students from higher social strata.

From Figure 3, we actually notice a statistically significant increase in enrolment probability only for students with poorly educated parents (at least one lower secondary). For people with at least one parent with an upper secondary qualification, the growth is very small, whereas for persons from well-educated families (i.e., having one or both parents with a tertiary degree), the lines are flat, indicating the absence of any significant variations. Obviously, for this group of students there is a clear ceiling effect. In fact, the enrolment probability for students who have two parents with a university degree is very close to 1, and, for people with at least one parent with a tertiary degree, this probability is higher than 0.8. The analysis of Figure 3 shows that there is some empirical evidence for an egalitarian effect of the Bologna process, even though it should be stressed that the differences between the various social strata remain very high. In particular, there is a clear polarisation between students whose parents earned a tertiary degree and all the other students.

Figure 3. Net enrolment predicted probabilities according to upper secondary school graduation cohort and parental education.

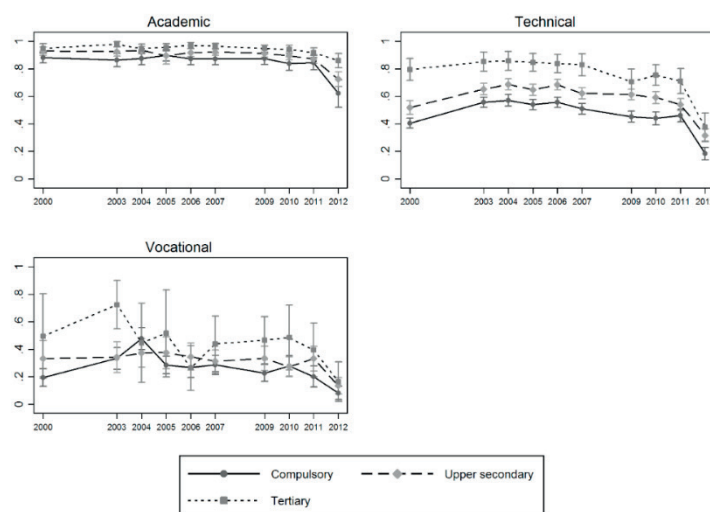


Note: the predicted probabilities come from model (1) described in the previous section.

From 2003 to 2011, the trend in enrolment probabilities is not subjected to dramatic changes and it mirrors what happens for the general enrolment probability (Figure 2). The main change can be observed in 2012, where a sharp decline for all social strata is evident, with the only exception being the offspring of parents with tertiary degrees. In fact, for these students, the decrease is not very sharp and it is not statistically significant. According

to the depicted picture, we find support for *hypotheses 2a*, which argues for an increase in the IEO. More precisely, it seems that the persistence and the intensification¹⁵ of the economic crisis has had remarkable effects on the enrolment probability of the vast majority of students. Therefore, for graduates of upper secondary education in the province of Trento, there is no evidence that an adverse economic conjuncture could lead to an increase in the enrolment rate according to the “parking lot” thesis. On the contrary, we find evidence about its negative influence, confirming the idea that in this context, the economic crisis could have dramatically increased educational costs thereby worsening the financial conditions of several families. What is surprising is the size of the negative association between enrolment rates and the economic crisis. In fact, the reduction in university participation occurs also for students from advantaged social backgrounds (at least one parent with tertiary education).

Figure 4. Net enrolment predicted probabilities according to upper secondary school graduation cohort, parental education and upper secondary school track.



Note: the predicted probabilities come from model (1) described in the previous session, with the difference that the models have been run separately for each track.

Before looking at what happens to horizontal inequalities (i.e., the choice of the field of study), it is worth deepening our analysis by looking at the role played by tracking and prior school performance. The aim here is to look at the mediating role they might play between parental education and en-

¹⁵ In fact, from figure 1 (panels a, b) it is clear that, in 2012, there was a sharp increase in both general and youth unemployment rate. The GDP also showed a further decrease.

rolment. The interesting point is to assess whether the association between our main variables of interest is the same across tracks and within students with the same level of achievement. Although every student with an upper secondary degree can enrol at the university, graduates from an academic track have a higher probability of continuing on to the university system (Azzolini and Vergolini 2014, Ballarino and Panichella 2014). In figure 4, we analyse the association between parental education¹⁶ and cohort showing separate models for each upper secondary school track. Interestingly, for the academic track, there are almost no differences between the various educational levels of parents until 2012. In 2012, the drop in enrolment rate is much more evident for the children of less educated parents, and the gap between these students and the offspring of tertiary degree parents becomes statistically significant. If we look at the technical track, the gap is more evident and students from more educated parents show a higher probability of enrolling in the university. For this case, the significant increase in the enrolment probability for students whose parents obtained an upper secondary or a compulsory qualification becomes interesting. Moreover, there is a huge reduction for all social backgrounds, even if the more dramatic decrease is observed for the students from less advantaged background (i.e., parents with compulsory education only).¹⁷

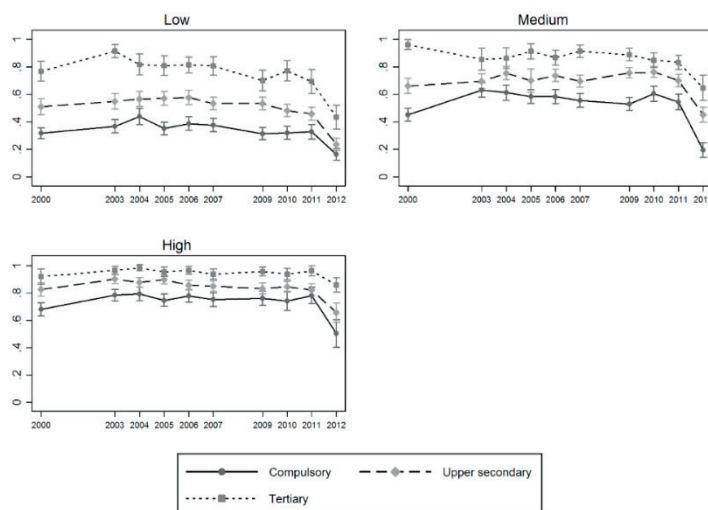
Some interesting results emerge by looking at the trend in IEO in relation to marks obtained at the *Esame di maturità* (Figure 5). We find that two distinct groups benefit more from the implementation of the Bologna process: low-skilled children of well-educated families and medium-high skilled students whose parents possess only a compulsory education. Focusing on this last result, the effect is stronger for medium skilled students than for the high skilled ones because, for the latter, the enrolment probability is already quite high (more than 0.6), while for the medium skilled, the enrolment probability changed from approximately 0.4 to approximately 0.6. In this case, the simplification of the university system together with the reduction in costs has favoured two very different groups of students. It is realistic to think that good students from lower social backgrounds are able to take advantage of the costs reduction, while poor performing students with well-educated parents can exploit the simplification of the university system. It is also interesting to note that those students who benefit more from the Bologna process are the same that experienced the most dramatic

¹⁶ Due to small sample size, we are required to slightly change the definition of parental education, relying on the dominance approach (Erikson, 1984) and considering the following categories: i) tertiary degree; ii) upper secondary degree; and iii) compulsory education (primary and lower secondary school).

¹⁷ We do not comment on the results for the vocational track because the trends are quite erratic and the standard errors are very large.

reduction in enrolment probability in 2012. This evidence is in line with the predictions of *hypotheses 1 and 2a*.

Figure 5. Net enrolment predicted probabilities according to upper secondary school graduation cohort, parental education and marks for the Esame di maturità.



Note: the predicted probabilities come from model (1) described in the previous session, with the difference that the models have been run separately according to received mark for the Esame di maturità. This mark has been coded in three categories according to the tertiles distribution.

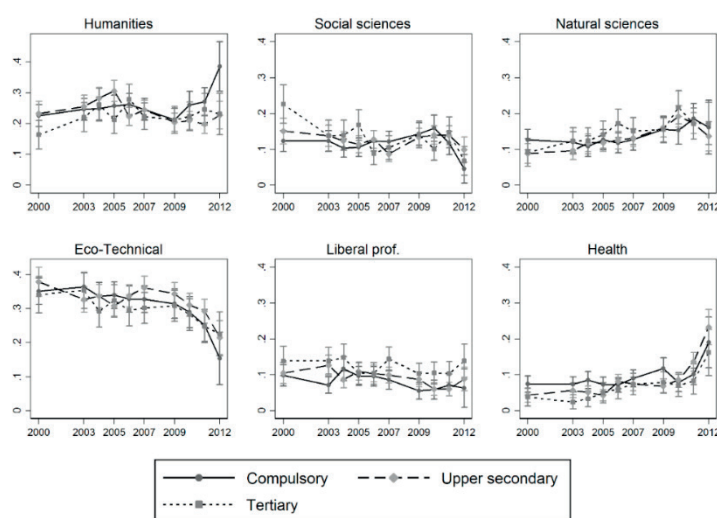
The last part of the empirical results is devoted to the analysis of IEO in connection with the choice of field of study.¹⁸ In figure 6, we report the predicted probabilities deriving from the multinomial logistic regression specified in the previous section. The emerging trend for Natural Sciences and for Liberal professions highlights a substantial stability in the influence of parental education along the time span considered. We can observe some discontinuities after the Bologna process only for the Social sciences field, where there is a (marginally significant) decrease in enrolment probability for students with highly educated parents. This empirical evidence could be understood as a sign of the presence of EMI, in the sense that, in a period of educational expansion, people from the upper strata tend to avoid fields of study with lower educational returns.¹⁹ However, the results for the other

¹⁸ Given the small sample size, for all empirical analyses, we use the three-category version of parental education. Moreover, we were not able to produce reliable estimates for separate models for track and marks in upper secondary school.

¹⁹ It has been shown for the Italian case that the less remunerative fields of study are those connected with Humanities and Social sciences (Ballarino & Bratti, 2009; Vergolini & Vlach, 2017).

fields do not support this hypothesis; in fact, we do not observe any increase in enrolment probabilities in less remunerative fields for students from disadvantaged social backgrounds and, at the same time, there is no increase in choices of remunerative faculties for people from upper strata. This means that, at least in the province of Trento, the increase in the enrolment rate after the Bologna process has not been translated into an intensification of social inequalities.

Figure 6. Predicted probabilities of enrolling in different fields of study according to upper secondary school graduation cohort and parental education.



Note: the predicted probabilities come from model (2) described in the previous session.

The next step concerns the analysis of what happens with the association between parental education and the choice of field of study with the persistence of the economic crisis. Our results are compatible with *Hypothesis 4a*, which states that a growth of IEO at vertical level does not produce an increase in IEO at the horizontal one. In fact, for all the fields considered, there are no differences between the various parental educational levels. One exception is observed for the Humanities field, for which there is an increase in the enrolment probability for students whose parents obtained only a compulsory education. An interesting trend that we observed concerns the monotonic decline in the enrolment probabilities for all social strata in the technical fields combined with an increase in the health fields. The increase in the latter could be a sign of a sort of reaction to both the economic crisis and the decrease in the economic returns of a Bachelor's degree. In fact, the choice of health professions guarantees a good employability without the

need to also earn a Master's degree. At the same time, this result may be due to a labour market trend. In other words, it could reflect a reduced demand of graduates from the technical field (who are mainly employed in the private sector), together with a stable or increased demand of graduated from health disciplines coming from the public sector, which is anti-cyclical.

Conclusions and discussion

In this paper, we have analysed the trend in IEO in a local area in Italy following a theoretical approach based on rational action theory. More precisely, we have focused the attention on vertical and horizontal dimensions of IEO. We find that students from the most disadvantageous social backgrounds have greatly benefitted from the implementation of the Bologna process, but also that, at the same time, these students show a greater decline in university participation after the beginning of the economic crisis, with respect to students from well off families. Therefore, we have enough evidence to corroborate the prediction made according to *Hypotheses 1* and *2a*. This means that the Bologna process succeeded in enhancing university participation of students from lower socio-economic backgrounds, but this positive effect has been totally upended by the persistence of the economic crisis. These results suggest the presence of liquidity constraints in enrolment choice, in particular for students from the lowest social strata independent of their marks and track attended at upper secondary school. The argument done so far consider mainly the costs connected to university participation. However, in Italy, in the period covered by our analyses (ANVUR 2016), also the coverage rate of scholarships decreased (i.e. the proportion of eligible students who do not receive the scholarship due to funding shortage increased). If we also consider that tuition fees increased as well, we can conclude that the "parking lot" is becoming too expensive.

Regarding the choice of field of study, we do not find support for the EMI thesis (*Hypothesis 3*). In fact, we do not observe any increase in social inequality after the Bologna process and we do not find any relevant differences between the various levels of parental education. This result is consistent with the life-course hypothesis (Müller & Karle, 1993) and with the differential social selection argument (Mare, 1981). In the first case, the idea is that individuals become more and more independent from their parents as they grow up, which could translate into more autonomy regarding choices associated with higher education. The latter argument simply states that only motivated and talented students from lower socio-economic backgrounds decide to enrol at university and, hence, they are quite similar to upper strata students. Finally, the empirical results show that, in general, the economic crisis, coherently with *Hypothesis 4a*, has not worsened IEO in the choice of

field of study, but it has had an effect on the desirability of some fields across all the social strata considered.

One final point that has to be stressed concerns drop-out rates. In this paper we look only at enrolment rates, that represent the initial step into tertiary education. To understand the role of drop-out in IEOs, two hypothetical scenarios can be imagined. In the first one, we experience an increase in the drop-out rate after the Bologna process, as happened at the national level (Argentin and Triventi 2011). In this situation, an initial decrease in IEOs followed by an increase in drop-out for students from lower socio-economic backgrounds could result in a zero effect, or even in an increase in IEOs at graduation. In the second hypothetical situation, we see a reduction of drop-out after the economic crisis, which could lead to a decrease of IEO in the probability of graduating from university.

Unfortunately, our data could not help us in understanding what happens after enrolment took place, in terms of successive drop-out or graduation. This is a limitation that can be overcome only partially with Istat data gathered at the national level, where students are interviewed three/four years after the diploma. Thus, more longitudinal data on university career are needed to better understand the educational choices of Italian students.

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Appendix

This appendix reports some descriptive statistics; the complete models that have been presented only graphically in the main text; and an additional analysis concerning the operationalisation of field of study.

Descriptive statistics

Table A1. Percentage of students according to field of study and upper secondary school graduation cohort in the province of Trento.

Cohort	Humanities	Social sciences	Natural sciences	Eco-Technical	Liberal professions	Health
2000	21.3	14.9	10.6	36.1	11.1	6.1
2003	24.5	13.0	11.1	34.9	11.0	5.6
2004	25.6	11.5	12.0	33.8	10.7	6.5
2005	26.8	12.0	12.9	32.1	10.1	6.0
2006	25.6	11.6	13.4	31.5	10.0	7.9
2007	24.0	10.2	13.4	33.6	10.3	8.4
2009	20.3	14.1	15.4	33.3	8.6	8.3
2010	21.9	14.1	18.5	30.0	7.5	8.0
2011	22.7	13.8	17.5	27.5	7.8	10.8
2012	22.0	11.3	14.4	32.6	10.4	9.3
Total	23.5	12.6	14.0	32.4	9.7	7.8

Table A2. Distribution of sex according to upper secondary school graduation cohort in the province of Trento.

Cohort	Female	Male
2000	55.7	44.3
2003	58.8	41.2
2004	54.3	45.7
2005	57.9	42.1
2006	58.6	41.5
2007	57.3	42.7
2009	57.7	42.4
2010	55.6	44.4
2011	57.9	42.1
2012	55.9	44.1
Total	57.0	43.0

Table A3. Distribution of social origins (parental social class and parental education) upper secondary school graduation cohort in the province of Trento.

Cohort	Parental social class					Parental education		
	Service Class	Routine non-manual	Self-employed	Working class	Both tertiary	At least one tertiary	At least one upper secondary	At least one lower secondary
2000	24.7	22.4	16.2	36.8	4.8	10.1	31.9	53.2
2003	27.0	23.8	15.7	33.6	5.8	10.5	37.8	45.9
2004	23.0	26.9	14.7	35.4	5.5	11.3	41.8	41.4
2005	22.4	26.2	14.0	37.4	6.2	10.2	38.9	44.6
2006	22.4	26.4	15.4	35.8	6.2	10.8	41.5	41.5
2007	22.4	26.2	13.9	37.4	6.5	10.6	42.5	40.4
2009	29.4	34.4	14.6	21.7	6.3	12.7	44.4	36.6
2010	29.2	28.6	13.0	29.2	6.0	12.8	48.1	33.1
2011	28.7	29.0	12.2	30.1	6.5	11.7	47.7	34.1
2012	27.2	26.3	13.0	33.5	6.2	14.4	49.3	30.1
Total	25.6	27.1	14.3	33.0	6.0	11.6	42.6	39.8

Table A4. Distribution of school career (failure, remedial exams, upper secondary school track, final exam marks for upper secondary school) according to upper secondary school graduation cohort in the province of Trento.

Cohort	Failure	Remedial	Upper secondary school track			Upper secondary school track
	% of yes	% of yes	Academic	Technical	Vocational	Mean
2000	20.3	56.1	34.0	54.6	11.5	77.3
2003	19.3	52.3	35.2	53.3	11.5	78.8
2004	17.1	52.0	34.7	52.3	13.1	78.8
2005	16.7	50.1	35.5	50.3	14.2	78.5
2006	16.2	51.8	36.7	48.8	14.5	78.2
2007	16.8	51.2	36.9	47.1	16.0	77.5
2009	17.3	52.8	39.7	45.4	14.9	76.4
2010	18.8	54.2	41.5	44.0	14.5	76.0
2011	17.7	52.7	41.9	44.1	14.1	76.8
2012	20.7	55.1	40.0	43.3	16.7	76.5
Total	18.1	52.9	37.8	48.0	14.2	77.3

Complete models

Table A5. Net enrolment rate according to upper secondary school graduation cohort in the province of Trento.

Cohort	Proportion	S.E.
2000	0.586	0.011
2003	0.695	0.010
2004	0.711	0.010
2005	0.675	0.010
2006	0.687	0.010
2007	0.662	0.010
2009	0.649	0.010
2010	0.667	0.010
2011	0.651	0.010
2012	0.582	0.010

Note: this table reports the numerical values regarding figure 2

Table A6. Binomial logistic regression on enrolment probability.

	Coefficient	S.E.	p-value
<i>Cohort</i>			
2003	0.935	0.978	0.339
2004	-0.603	0.786	0.443
2005	-1.048	0.701	0.135
2006	-0.966	0.646	0.135
2007	-1.033	0.649	0.111
2009	-1.014	0.658	0.124
2010	-1.503	0.669	0.025
2011	-1.257	0.691	0.069
2012	-2.100	0.678	0.002
<i>Parental education</i>			
At least one tertiary	-1.443	0.623	0.021
At least one upper secondary	-2.048	0.579	0.000
At least one lower secondary	-2.533	0.576	0.000
<i>Parental education*Cohort</i>			
At least one tertiary*2003	-0.359	1.039	0.730
At least one tertiary*2004	0.956	0.867	0.270
At least one tertiary*2005	1.582	0.787	0.044
At least one tertiary*2006	1.299	0.725	0.073
At least one tertiary*2007	1.569	0.738	0.033
At least one tertiary*2009	1.046	0.730	0.152
At least one tertiary*2010	1.688	0.741	0.023
At least one tertiary*2011	0.873	0.759	0.250
At least one tertiary*2012	0.654	0.744	0.379

At least one upper secondary*2003	-0.609	0.987	0.537
At least one upper secondary*2004	1.103	0.797	0.166
At least one upper secondary*2005	1.357	0.718	0.059
At least one upper secondary*2006	1.421	0.659	0.031
At least one upper secondary*2007	1.286	0.661	0.052
At least one upper secondary*2009	1.238	0.670	0.065
At least one upper secondary*2010	1.649	0.681	0.015
At least one upper secondary*2011	1.194	0.702	0.089
At least one upper secondary*2012	1.101	0.691	0.111
At least one upper secondary*2003	-0.409	0.984	0.677
At least one lower secondary*2003	1.354	0.793	0.088
At least one lower secondary*2004	1.556	0.709	0.028
At least one lower secondary*2005	1.511	0.655	0.021
At least one lower secondary*2006	1.499	0.657	0.023
At least one lower secondary*2007	1.225	0.667	0.066
At least one lower secondary*2009	1.860	0.679	0.006
At least one lower secondary*2010	1.548	0.701	0.027
At least one lower secondary*2011	1.136	0.692	0.101
At least one lower secondary*2012	-0.359	1.039	0.730
At least one lower secondary*2003	0.956	0.867	0.270
<i>Parental social class</i>			
Routine non-manual	-0.125	0.059	0.034
Self-employed	-0.304	0.066	0.000
Working class	-0.546	0.058	0.000
<i>Final grade</i>			
	0.061	0.002	0.000
<i>Failure</i>			
No	0.194	0.048	0.000
<i>Remedial exam</i>			
No	0.094	0.046	0.040
<i>Track</i>			
Technical	-1.764	0.050	0.000
Vocational	-2.933	0.068	0.000
<i>Sex</i>			
Male	-0.229	0.038	0.000
Constant	-0.423	0.588	0.472
Pseudo-R ²	0.284		
N	20,928		

Note: this table reports the complete model from which are derived the predicted probabilities presented in figure 3. The reference categories are respectively: 2000; Both tertiary; Both tertiary*2000; Service class; Yes; Yes; Academic; Female.

Table A7. Binomial logistic regression on enrolment probability according to the different tracks at upper secondary school.

	Academic			Technical			Vocational		
	Coeff.	S.E.	p-value	Coeff.	S.E.	p-value	Coeff.	S.E.	p-value
<i>Parental education</i>									
Upper secondary	0.296	0.321	0.357	0.455	0.152	0.003	0.684	0.410	0.095
Tertiary	0.452	0.429	0.292	1.569	0.303	0.000	1.375	0.735	0.061
<i>Cohort</i>									
2003	-0.203	0.304	0.503	0.635	0.128	0.000	0.721	0.314	0.022
2004	-0.200	0.307	0.516	0.768	0.135	0.000	1.315	0.299	0.000
2005	0.018	0.321	0.956	0.599	0.127	0.000	0.570	0.290	0.050
2006	-0.218	0.294	0.458	0.703	0.130	0.000	0.499	0.318	0.116
2007	-0.043	0.294	0.884	0.505	0.128	0.000	0.665	0.305	0.029
2009	-0.162	0.296	0.585	0.237	0.132	0.071	0.379	0.304	0.211
2010	-0.311	0.287	0.278	0.392	0.142	0.006	0.717	0.313	0.022
2011	-0.383	0.300	0.202	0.415	0.141	0.003	0.399	0.348	0.252
2012	-1.477	0.315	0.000	-0.959	0.186	0.000	-0.765	0.408	0.061
<i>Parental education*Cohort</i>									
Upper secondary#2003	0.084	0.465	0.856	-0.123	0.207	0.551	-0.748	0.541	0.166
Upper secondary#2004	0.239	0.452	0.597	-0.055	0.213	0.798	-1.213	0.520	0.020
Upper secondary#2005	-0.446	0.545	0.413	-0.095	0.205	0.644	-0.214	0.526	0.684
Upper secondary#2006	-0.034	0.428	0.936	0.025	0.208	0.902	-0.363	0.520	0.484
Upper secondary#2007	0.048	0.424	0.909	-0.109	0.204	0.593	-0.734	0.501	0.143
Upper secondary#2009	-0.156	0.418	0.709	0.139	0.203	0.493	-0.282	0.502	0.575
Upper secondary#2010	-0.114	0.407	0.780	0.007	0.214	0.974	-0.971	0.500	0.052
Upper secondary#2011	-0.325	0.413	0.431	-0.338	0.212	0.110	-0.323	0.531	0.543
Upper secondary#2012	-0.131	0.424	0.758	0.221	0.255	0.386	-0.435	0.595	0.465
Tertiary#2003	1.102	0.669	0.099	-0.118	0.443	0.790	0.058	0.921	0.950
Tertiary#2004	0.019	0.595	0.974	-0.112	0.455	0.805	-1.330	1.005	0.186
Tertiary#2005	-0.024	0.584	0.968	-0.078	0.421	0.853	-0.711	1.083	0.512
Tertiary#2006	0.749	0.598	0.210	-0.265	0.423	0.530	-1.806	0.894	0.043
Tertiary#2007	0.342	0.566	0.545	0.021	0.443	0.962	-0.887	0.886	0.317
Tertiary#2009	0.052	0.537	0.923	-0.419	0.399	0.294	-0.505	0.842	0.549
Tertiary#2010	0.026	0.545	0.963	-0.483	0.392	0.218	-0.790	0.920	0.390
Tertiary#2011	-0.245	0.535	0.647	-0.735	0.403	0.068	-1.021	0.895	0.254
Tertiary#2012	0.238	0.540	0.659	-0.776	0.422	0.066	-1.079	0.995	0.278
<i>Parental social class</i>									
Routine non-manual	-0.173	0.142	0.222	-0.136	0.071	0.055	-0.114	0.163	0.484
Self-employed	-0.425	0.165	0.010	-0.303	0.079	0.000	-0.199	0.177	0.260
Working class	-0.697	0.151	0.000	-0.530	0.069	0.000	-0.490	0.152	0.001
<i>Final grade</i>									
Failure: No	0.055	0.005	0.000	0.062	0.003	0.000	0.064	0.005	0.000
<i>Remedial exam: No</i>									
Remedial exam: No	0.075	0.110	0.493	0.133	0.056	0.017	-0.010	0.120	0.935
<i>Sex: Male</i>									
Sex: Male	0.195	0.095	0.041	-0.362	0.046	0.000	-0.185	0.109	0.089
Constant	-2.251	0.414	0.000	-4.904	0.218	0.000	-5.813	0.467	0.000
Pseudo-R ²	0.121			0.159			0.123		
N	7,937			10,439			2,552		

Note: this table reports the complete model from which are derived the predicted probabilities presented in figure 4. The reference categories are respectively: Tertiary; 2000; Tertiary*2000; Service class; Yes; Yes; Female.

Table A8. Binomial logistic regression on enrolment probability according to marks for the Esame di maturità.

	Low			Medium			High		
	Coeff.	S.E.	p-value	Coeff.	S.E.	p-value	Coeff.	S.E.	p-value
<i>Parental education</i>									
Upper secondary	0.421	0.198	0.033	0.547	0.193	0.004	0.354	0.243	0.145
Tertiary	1.052	0.293	0.000	2.775	0.540	0.000	0.604	0.443	0.173
<i>Cohort</i>									
2003	0.235	0.178	0.186	0.819	0.180	0.000	0.564	0.196	0.004
2004	0.637	0.185	0.001	0.876	0.179	0.000	0.707	0.221	0.001
2005	0.315	0.172	0.067	0.834	0.173	0.000	0.346	0.193	0.073
2006	0.418	0.174	0.016	0.703	0.176	0.000	0.503	0.202	0.013
2007	0.388	0.172	0.024	0.555	0.171	0.001	0.431	0.207	0.037
2009	-0.043	0.182	0.815	0.300	0.171	0.078	0.315	0.219	0.150
2010	-0.078	0.183	0.669	0.753	0.188	0.000	0.211	0.254	0.407
2011	0.137	0.189	0.470	0.404	0.186	0.030	0.269	0.244	0.272
2012	-0.987	0.230	0.000	-1.082	0.233	0.000	-0.916	0.291	0.002
<i>Parental education * Cohort</i>									
Upper secondary#2003	0.027	0.278	0.924	-0.594	0.281	0.034	0.126	0.347	0.717
Upper secondary#2004	-0.125	0.280	0.655	-0.279	0.279	0.317	-0.156	0.353	0.660
Upper secondary#2005	0.024	0.267	0.927	-0.664	0.341	0.051	0.293	0.340	0.388
Upper secondary#2006	0.073	0.272	0.787	-0.143	0.271	0.597	-0.267	0.331	0.420
Upper secondary#2007	-0.296	0.263	0.261	-0.193	0.262	0.460	-0.052	0.337	0.878
Upper secondary#2009	0.252	0.268	0.348	0.061	0.260	0.815	-0.348	0.340	0.306
Upper secondary#2010	-0.040	0.269	0.881	-0.275	0.277	0.321	-0.039	0.370	0.916
Upper secondary#2011	-0.403	0.276	0.145	-0.289	0.274	0.293	-0.314	0.366	0.391
Upper secondary#2012	-0.222	0.323	0.492	0.248	0.313	0.428	0.024	0.411	0.954
Tertiary#2003	1.268	0.473	0.007	-2.170	0.664	0.001	0.606	0.650	0.351
Tertiary#2004	-0.009	0.462	0.985	-2.505	0.676	0.000	0.921	0.867	0.288
Tertiary#2005	0.181	0.428	0.673	-1.796	0.689	0.009	0.362	0.631	0.565
Tertiary#2006	-0.060	0.398	0.880	-1.993	0.626	0.001	0.474	0.650	0.466
Tertiary#2007	0.185	0.418	0.659	-1.561	0.651	0.017	-0.116	0.604	0.847
Tertiary#2009	-0.028	0.405	0.944	-1.705	0.615	0.006	0.427	0.658	0.516
Tertiary#2010	0.312	0.422	0.461	-2.278	0.611	0.000	0.019	0.637	0.977
Tertiary#2011	-0.747	0.418	0.074	-2.130	0.603	0.000	0.472	0.768	0.539
Tertiary#2012	-0.391	0.431	0.364	-1.839	0.630	0.004	0.238	0.590	0.687
<i>Parental social class</i>									
Routine non-manual	-0.159	0.087	0.067	-0.158	0.106	0.134	-0.063	0.121	0.599
Self-employed	-0.299	0.102	0.003	-0.434	0.113	0.000	-0.205	0.138	0.137
Working class	-0.561	0.086	0.000	-0.623	0.104	0.000	-0.480	0.120	0.000
Failure: No	0.324	0.065	0.000	0.093	0.084	0.264	0.126	0.161	0.431
Remedial exam: No	0.272	0.086	0.001	0.251	0.065	0.000	0.037	0.106	0.727
<i>Track</i>									
Technical	-1.884	0.071	0.000	-1.641	0.088	0.000	-1.781	0.111	0.000
Vocational	-3.014	0.114	0.000	-2.855	0.110	0.000	-2.984	0.140	0.000
Sex: Male	-0.330	0.060	0.000	-0.266	0.063	0.000	0.009	0.079	0.914
Constant	1.162	0.154	0.000	1.613	0.179	0.000	2.634	0.245	0.000
Pseudo-R ²	0.242			0.220			0.197		
N	7,093			7,203			6,632		

Note: this table reports the complete model from which are derived the predicted probabilities presented in figure 5. The reference categories are respectively: Tertiary; 2000; Tertiary*2000; Service class; Yes; Yes; Female.

Table A9. Multinomial logistic regression on the choice of the field of study.

	Humanities			Social sciences			Natural sciences			Liberal professions			Health			
	Coeff.	S.E.	p-value	Coeff.	S.E.	p-value	Coeff.	S.E.	p-value	Coeff.	S.E.	p-value	Coeff.	S.E.	p-value	
<i>Parental education</i>																
Upper secondary	-0.043	0.193	0.825	0.130	0.228	0.568	-0.438	0.234	0.061	-0.010	0.253	0.968	-0.622	0.310	0.045	
Tertiary	-0.278	0.245	0.257	0.653	0.248	0.008	-0.299	0.287	0.297	0.385	0.272	0.156	-0.626	0.404	0.122	
<i>Cohort</i>																
2003	0.057	0.178	0.750	-0.030	0.219	0.892	-0.098	0.212	0.644	-0.361	0.259	0.163	-0.041	0.248	0.867	
2004	0.165	0.183	0.368	-0.114	0.224	0.612	-0.111	0.220	0.614	0.232	0.253	0.359	0.199	0.250	0.426	
2005	0.185	0.175	0.292	-0.104	0.220	0.638	0.030	0.204	0.884	0.030	0.246	0.902	0.030	0.245	0.902	
2006	0.257	0.176	0.144	0.103	0.218	0.635	-0.004	0.208	0.985	0.059	0.246	0.811	0.064	0.248	0.795	
2007	0.185	0.178	0.298	0.085	0.218	0.695	0.074	0.209	0.723	-0.053	0.256	0.837	0.288	0.242	0.235	
2009	0.071	0.196	0.719	0.284	0.223	0.202	0.312	0.214	0.144	-0.459	0.301	0.127	0.598	0.249	0.016	
2010	0.395	0.203	0.052	0.503	0.229	0.028	0.384	0.227	0.091	-0.299	0.318	0.346	0.306	0.272	0.262	
2011	0.588	0.213	0.006	0.353	0.252	0.161	0.726	0.227	0.001	0.051	0.311	0.870	0.710	0.269	0.008	
2012	1.576	0.363	0.000	0.012	0.571	0.983	1.100	0.425	0.010	0.486	0.591	0.411	1.947	0.421	0.000	
<i>Parental education*Cohort</i>																
Upper secondary#2003	0.226	0.260	0.384	0.123	0.309	0.690	0.339	0.322	0.293	0.722	0.345	0.036	0.493	0.408	0.227	
Upper secondary#2004	0.181	0.257	0.481	0.061	0.307	0.842	0.519*	0.314	0.098	-0.286	0.345	0.408	0.121	0.406	0.766	
Upper secondary#2005	0.357	0.251	0.155	0.081	0.307	0.792	0.478	0.304	0.116	0.254	0.333	0.445	0.223	0.406	0.583	
Upper secondary#2006	-0.176	0.250	0.481	-0.151	0.301	0.616	0.473	0.304	0.120	0.049	0.332	0.882	0.695	0.383	0.069	
Upper secondary#2007	-0.102	0.251	0.684	-0.604	0.309	0.050	0.367	0.302	0.224	0.035	0.339	0.919	0.296	0.381	0.437	
Upper secondary#2009	-0.125	0.266	0.640	-0.322	0.300	0.283	0.377	0.301	0.210	0.366	0.376	0.329	-0.044	0.385	0.909	
Upper secondary#2010	-0.309	0.273	0.258	-0.388	0.309	0.210	0.589	0.311	0.059	-0.070	0.400	0.862	0.584	0.401	0.145	
Upper secondary#2011	-0.465	0.286	0.103	-0.152	0.329	0.644	0.207	0.315	0.510	-0.343	0.399	0.390	0.734	0.393	0.062	
Upper secondary#2012	-0.916	0.436	0.036	0.238	0.644	0.711	-0.083	0.511	0.871	-0.038	0.666	0.954	0.424	0.529	0.423	
Tertiary#2003	0.177	0.324	0.585	-0.529	0.354	0.135	0.359	0.376	0.340	0.318	0.372	0.394	-0.466	0.615	0.449	
Tertiary#2004	0.490	0.326	0.133	-0.196	0.355	0.582	0.575	0.378	0.128	0.014	0.363	0.969	-0.159	0.559	0.776	
Tertiary#2005	0.122	0.317	0.700	-0.151	0.339	0.656	0.453	0.361	0.210	-0.271	0.365	0.458	0.285	0.534	0.593	
Tertiary#2006	0.432	0.315	0.170	-0.890	0.361	0.014	0.788	0.358	0.028	-0.192	0.364	0.597	0.552	0.505	0.274	
Tertiary#2007	0.244	0.316	0.440	-0.744	0.351	0.034	0.553	0.362	0.127	0.218	0.361	0.546	0.493	0.494	0.319	
Tertiary#2009	0.287	0.327	0.380	-0.658	0.342	0.055	0.321	0.362	0.376	0.261	0.402	0.516	0.225	0.490	0.647	
Tertiary#2010	0.080	0.337	0.811	-1.150	0.357	0.001	0.670	0.370	0.070	0.200	0.419	0.633	0.477	0.516	0.356	
Tertiary#2011	0.188	0.349	0.590	-0.424	0.376	0.260	0.230	0.381	0.545	-0.004	0.424	0.993	0.423	0.520	0.416	
Tertiary#2012	-0.766	0.496	0.123	-0.766	0.703	0.276	-0.038	0.549	0.945	-0.035	0.675	0.959	-0.037	0.627	0.953	
<i>Parental social class</i>																
Routine non-manual	0.355	0.070	0.000	0.117	0.081	0.146	0.260	0.075	0.001	-0.031	0.084	0.717	0.414	0.103	0.000	
Self-employed	0.137	0.090	0.130	-0.140	0.108	0.194	0.100	0.104	0.337	-0.297	0.127	0.020	0.108	0.131	0.412	
Working class	0.436	0.080	0.000	0.101	0.094	0.286	0.372	0.089	0.000	-0.013	0.104	0.901	0.834	0.111	0.000	
<i>Final grade</i>																
Failure: No	-0.010	0.003	0.000	-0.021	0.003	0.000	0.007	0.003	0.026	0.011	0.004	0.003	-0.034	0.004	0.000	
Remedial exam: No	-0.333	0.089	0.000	-0.469	0.096	0.000	-0.154	0.101	0.127	-0.267	0.123	0.030	-0.304	0.114	0.008	
Sex: Male	-2.180	0.060	0.000	-1.777	0.067	0.000	-0.242	0.059	0.000	-1.182	0.071	0.000	-1.543	0.079	0.000	
<i>Track</i>																
Technical	-0.108	0.055	0.052	0.216	0.066	0.001	-0.324	0.060	0.000	-0.665	0.072	0.000	-0.060	0.077	0.437	
Vocational	0.498	0.124	0.000	0.260	0.148	0.080	-0.769	0.176	0.000	-1.488	0.251	0.000	-0.146	0.178	0.412	
Constant	1.504	0.256	0.000	1.829	0.299	0.000	-1.124	0.286	0.000	-0.929	0.341	0.006	1.828	0.362	0.000	
Pseudo-R ²	0.082															
N	13,683															

Note: this table reports the complete model from which are derived the predicted probabilities presented in figure 6. The reference categories are respectively: Tertiary; 2000; Tertiary*2000; Service class; Yes; Yes; Female; Academic. The Eco-Technical field acts as reference category for the dependent variable.

Additional analysis

As robustness check we report here the analyses regarding the choice of the field of study using the operationalisation proposed by Ballarino and Bratti (2009), who present the following fields: Hard sciences; Medicine (with health professions); Technical; Hard social sciences; Soft social sciences; Law; Humanities.

Figure A1. Predicted probabilities of enrolling in different fields of study according to upper secondary school graduation cohort and parental education.

