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Information matters, but it is not enough: a field experiment on the causal effect of information barriers for participation in Higher Education[*]

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Abstract

Our contribution assesses the role of information barriers for patterns of participation in Higher Education (HE) and the related social inequalities. For this purpose, we developed a large-scale clustered randomised experiment involving over 9,000 high school seniors from 62 Italian schools. We designed a counseling intervention to correct student misperceptions of the profitability of HE, that is, the costs, economic returns and chances of success of investments in different tertiary programs. We employed a longitudinal survey to test whether treated students' educational trajectories evolved differently relative to a control group. We find that, overall, treated students enrolled less often in less remunerative fields of study in favour of postsecondary vocational programmes. Most importantly, this effect varied substantially by parental social class and level of education. The shift towards vocational programmes was mainly due to the offspring of low-educated parents; in contrast, children of tertiary graduates increased their participation in more rewarding university fields. Similarly, the redistribution from weak fields to vocational programmes mainly involved the children of the petty bourgeoisie and the working class, while upper class students invested in more rewarding university fields. We argue that the status-maintenance model proposed by Breen and Goldthorpe can explain these socially differentiated treatment effects. Overall, our results challenge the claim that student misperceptions contribute to horizontal inequalities in access to HE.

Keywords: randomised experiment, Higher Education, field of study, educational inequality

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Information matters, but it is not enough: a field experiment on the causal effect of information barriers for participation in Higher Education

1. Introduction: information barriers and the internal differentiation of Higher Education

Social stratification research has paid increasing attention to the internal differentiation of Higher Education (HE). On one hand, the literature reports that upper class students more often attend university than postsecondary vocational programmes and that in the former they are overrepresented in some fields of study such as law and medicine, in postgraduate courses, and in the most prestigious university institutions (e.g. Shavit et al. 2007; Van de Werfhorst et al. 2003; Davies, Guppy 1997). On the other hand, research shows that those tertiary programmes displaying an overrepresentation of upper class students offer better labour market prospects (e.g. Triventi 2013; Boliver 2011; Jackson et al. 2008). Hence, the internal differentiation of HE provides an institutional environment propitious to the intergenerational reproduction of social inequality via education (Lucas 2001).

Information barriers are often invoked as a decision-making mechanism contributing to these empirical patterns. Regarding socio-economic differences in access to tertiary programmes, some studies suggest that upper class families have access to better quality information concerning the graduate labour market and are, therefore, in a better position to select the most rewarding educational options (Morgan 2005; Usher 2005). As regards labour market differentials between tertiary programmes, some studies suggest that a lack of information concerning the economic prospects of different fields of study drives an excess supply of graduates in some fields, thus depressing their economic profitability; these occupational imbalances between fields could then be reduced by providing high school students with transparent information concerning economic returns to fields of study (Wiswall and Zafar 2015; Kerr et al. 2014). In other words, information barriers are supposed to undermine both the equity and the efficiency of student allocation into different tertiary programmes.

However, assessing whether information barriers constrain participation in HE raises severe methodological challenges. Subjective measures of student knowledge of the profitability of educational investments are often regarded as problematic (Manski 1993). Moreover, beliefs can be adaptive to anticipated decisions, and they can correlate with a large number of unmeasured confounders involving school and labour market contexts, family resources, and individual skills and attitudes. Reverse causality and omitted-variable bias are thus serious concerns for observational studies.

Unsurprisingly, in recent years a growing number of studies have resorted to experimental designs to obtain genuine causal inferences concerning the role of information barriers for participation in HE. These experiments have typically focused on misperceptions of university costs and have corrected them by confronting high school students with data on tuition fees or by supporting them in their application for financial aid. Some of these experiments suggest that this type of information inputs can affect participation in HE, more so for less well-off students, thus reducing social inequalities (Loyalka et al. 2013; Oreopulos and Dunn 2012; Bettinger et al. 2009). However, other field experiments report weak or null effects (Kerr et al. 2014; McGuigan et al. 2012; Dinkelman and Martinez 2012;

Jensen 2010); thus, challenging the claim that information barriers about the costs of HE fuel educational inequalities.

The role of information barriers concerning returns to tertiary programmes has been less investigated. Wiswall and Zafar (2015) conducted a web-survey of US undergraduates and confronted them with information about the profitability of university degrees in the US. They reported significant shifts in major choice towards more remunerative fields. However, Kerr et al. (2014) developed a counselling initiative providing Finnish high school students with detailed data about economic returns to fields of study, and concluded that this intervention failed to affect university enrolment patterns. Overall, the few available studies concerning the causal impact of information barriers for participation in HE do not reach conclusive results, and more research is warranted.

The diverging results may partly reflect country differences in the role of information barriers. The majority of these studies concern Anglo-Saxon nations, and it is therefore important to incorporate other country cases to explore this possibility. Moreover, these information experiments typically involve light-touch interventions based on booklets, web-sites or short information meetings. Therefore, they tend to focus only on one specific information barrier, usually the lack of knowledge about direct costs, that is, fees and opportunities for financial aid. Moreover, when information about economic returns to tertiary programmes is presented, the internal differentiation of HE along multiple dimensions (fields of study, university vs. vocational programmes, undergraduate vs. postgraduate courses) is not considered. Students thus receive only a rather partial picture of the overall pros and cons of investing in HE.

This article presents the results of an information experiment involving an intensive and comprehensive counselling initiative that took five hours of face-to-face meetings with high school seniors. This initiative confronted students with information concerning the direct costs of university, its opportunity costs, as well as the occupational returns to different fields of study across bachelor's and master's programmes and the opportunities to participate in vocational HE. Furthermore, to the best of our knowledge, this is the first information experiment also confronting students with estimates of their individual dropout risks across tertiary fields. In other words, in line with the theoretical framework of bounded rationality outlined in the next section, this experiment covered information on the costs, benefits and chances of success associated with different educational options, and assessed the causal impact of information constraints on patterns of participation in the different segments of HE.

This study takes Italy as an interesting test case to assess the role of information barriers for participation in HE. In Italy, high school students are given scant information concerning the opportunities and constraints associated with tertiary programmes. Counselling focuses essentially on the curricula of educational programmes, downplays occupational differentials between fields of study and between bachelor's and master's degrees, often ignores postsecondary vocational programmes and provides little support concerning access to financial aid. These weaknesses of counselling activities are particularly strong in the Italian case, but it has been noted that other western countries share similar problems (Grodsky and Jones 2007).

These deficiencies may be highly problematic because the Italian system of HE has become increasingly differentiated in recent years. Hence, navigating this complex and changing system currently is more difficult than in the past. Following the so-called Bologna process, since 2001 most university courses have been reorganised into two cycles (3 years for a bachelor's and 2 years for a master's), but some fields such as medicine and law have preserved the old model consisting of long university courses of 5 to 6 years. Because these new bachelor's and master's degrees are still weakly institutionalized in the

labour market, their economic returns are difficult to ascertain. Moreover, as regards the distinction between university and vocational programmes, in Italy HE has always been centred on university education; vocationally-oriented programmes have been traditionally underdeveloped and fragmented. This situation began to change in 2011, when a new two-year vocational HE programme (*Istituti Tecnici Superiori*) was introduced to train skilled technicians in selected economic sectors with sustained labour demand, but this programme still enrols small numbers of students and is not well-known. Finally, as regards fields of study, the growing recourse to entrance examinations has affected their student intake and occupational prospects, but again these differentiated and changing patterns of field returns are not easily grasped by families (Almalaurea 2016)[1]. Overall, the Italian case provides an ideal illustration of how, in a context of rapid transformations and increased complexity of HE, the weaknesses of counselling can drive information barriers affecting the equity and efficiency of the allocation of students into tertiary-level programmes. In the next section, we elaborate a theoretical framework to derive predictions concerning the impact of these information barriers.

2. Theoretical framework and hypotheses: information barriers to utility maximization and their institutional embeddedness

Rational choice theory has gained increasing popularity in social stratification research for explaining patterns of educational participation. This theory postulates that families maximise the expected utility of educational investments by balancing their costs against their economic benefits, weighted by their chances of success, that is, of successful completion (Erikson and Jonsson 1996; Gambetta 1987).

These choice processes result in social class differentials in educational participation because upper class students face lower relative costs due to the larger amount of financial resources available in their families, as well as higher chances of success due to their better school performance (Erikson and Jonsson 1996). According to the formalised model proposed by Breen and Goldthorpe (1997, BG model hereafter), social classes differ also in the subjective assessment of economic returns to educational investments. This is because the BG model postulates that some educational options (such as academic tracks in secondary education) are perceived by the families as riskier than others (such as vocational tracks): they enhance the chances of reaching upper class jobs (e.g., via increased chances to attain a university degree), but they are more academically selective and thus entail also higher risks of dropout and of demotion into unskilled jobs. Students and parents are thus faced with a trade-off: BG argue that upper class families are on average more motivated to take the more ambitious and risky educational options. This is because educational decisions of all social classes are driven by the goal of minimising the risks of downward mobility, but this goal has different implications for different social classes (relative risk aversion). To avoid social demotion, upper class students are more pressed to take the academic path that leads from general tracks in high school to university, while for working class students vocational options and access to skilled manual jobs are a safer option. Indeed the empirical patterns of the relationship between social origins and track choice corroborate this expectation for all developed nations (Jackson 2013; Blossfeld and Shavit 1993).

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[1] Additionally, the reputation of university institutions is starting to play some role in Italian HE, but the emergence of a well-established hierarchy is yet to come, and the indicators to rank 'university quality' are remarkably crude. Hence, we decided not to incorporate such considerations in our counselling initiative.

BG do not explicitly discuss the implications of their theoretical model for patterns of participation within HE. However, these implications may be derived quite straightforwardly. As regards direct and indirect costs, they are higher: i) for university education than for shorter postsecondary vocational programmes; ii) for students who continue to postgraduate education after a bachelor's degree; iii) for fields of study of longer duration such as medicine and law in Italy; and iv) for the most prestigious university institutions (Tolsma et al. 2010; Davies and Guppy 1997). These cost barriers thus hinder the participation of lower social classes in these tertiary programmes. Moreover, these programmes are generally perceived as more academically selective and more economically rewarding than their counterparts. Following the logic of the BG model, they should thus be perceived as more 'risky' options and therefore display an overrepresentation of upper class students. Previous research reports that this is indeed the case in several western countries (Shavit et al. 2007).

Let us now consider how information barriers may affect these decision-making mechanisms. The BG model is 'agnostic' in this respect. Being a model of bounded rationality, it allows for cognitive and information fallacies, but its core predictions do not strictly rely on their existence; what is crucial for this model is that families perceive some trade-off between more and less risky options, regardless of the accuracy of this belief. To incorporate information barriers into this model, we must proceed in two steps. First, we must consider the origins of student misperceptions, their direction (i.e., under- vs. overestimates of the actual choice parameters) and their magnitude. Second, we must consider whether these misperceptions vary by family background and how they interact with the set of constraints and opportunities of students from different social classes.

Student misperceptions reflect the degree of complexity of HE and the weaknesses of university advising. As argued above, the interaction between these two institutional factors is likely to generate substantial information barriers in Italy, as well as in other western countries. Moreover, we expect that the informal circulation of information about university education and its functioning is hindered in countries with a low presence of tertiary graduates, as is the case of Italy (Oecd 2015). Indeed, two recent studies report that Italian students have a poor knowledge of the system of HE (Abbiati and Barone 2017; Barone et al. 2016). On one hand, they overestimate university costs considerably and have limited awareness of financial aid opportunities, in line with findings reported for other western countries (Grodsky and Jones 2007). On the other hand, Italian students also moderately overestimate the economic prospects of university graduates: pessimistic information biases concerning costs are thus "compensated" by optimistic biases concerning returns to university education. This pattern differs from those reported for some other countries (cfr. Mc Guigan et al. 2012; Usher 2005) and probably reflects the comparatively poor labour market prospects of university degrees in Italy (Oecd 2015). Moreover, students display limited awareness of the marked differences between fields in terms of labour market opportunities open to undergraduate and postgraduate students, and limited knowledge of existing postsecondary vocational alternatives to university (Barone et al. 2016). Overall, it is apparent that students have a hard time grasping the career implications of the internal differentiation of HE.

If families are motivated to maximise occupational returns to educational investments but are poorly informed in this respect, we can expect that they will shift towards more rewarding programmes, once these information barriers are removed. In particular, it is well documented that in Italy engineering and ICT, medicine and other health-related fields outperform all other fields as regards the chances of access into upper class jobs, while the humanities and the social sciences (e.g., political science and sociology) display the poorest labour market rewards (Assirelli et al. 2016). Moreover, master's degrees and long university courses outperform bachelor's degrees (Cammelli and Gasperoni 2015), and

vocational programmes outperform high school diplomas as regards access to skilled, technical occupations (Indire 2015). Hence, we expect that removing the information barriers concerning these labour market differences results in treated students moving more frequently into rewarding fields of study, enrolling more often in a master's course or long university courses, and more frequently taking vocational programmes as an alternative to leaving the educational system after high school graduation. Overall, we can thus formulate the following hypotheses:

H1: treated students' enrolments shift from poorly rewarding fields of study (namely the humanities and social sciences) to more rewarding fields (engineering and ICT, medicine and other health fields);

H2: treated students' enrolments shift from attending only undergraduate courses to continuation onto postgraduate courses or to enrolment in long programmes;

H3: treated students' enrolments in postsecondary vocational programmes increase relative to the alternative of leaving the educational system after high school graduation;

However, the reactions of students to information about HE may differ according to their class of origin for two main reasons. On one hand, upper class students may be *less* reactive because they are already well informed about university education. Their parents are more educated on average and are thus in a better position to collect reliable information about the costs and benefits of university education from their acquaintances, as well as from university bureaucracies, newspapers and other media (Perna 2014). However, behavioural research reports that cognitive and information fallacies vary little according to level of education and that in several respects more educated people are just as simplistic as others when collecting and processing information (Kahneman 2011). Indeed, while some studies report a positive relationship between social position and information about university education (Usher 2005; Betts 1996), others report that upper class students and parents are just as poorly informed about it as the rest of the population (Avery and Kane 2004; Wolter 2000). Regarding Italy, the above-described information biases are largely unrelated to family background (Abbiati and Barone 2017)[2].

On the other hand, following the BG model, we may expect that students from different social classes react differently to information about HE because they face different sets of opportunities and constraints to make use of this information. Working class students should be more responsive to information about the availability of postsecondary vocational options. These options entail lower direct and indirect costs than university, are less selective and facilitate access to skilled technical occupations. In other words, vocational programmes are less risky options that maximise the chances of intergenerational immobility or of short-range upward mobility for working class students. Moreover, earlier educational transitions act as an additional constraint for these students, since they are overrepresented in vocational tracks that offer a weak training for university[3]. On the contrary, for upper class students costs constraints are less relevant and vocational alternatives leading to technical jobs entail significant risks of downward mobility. Additionally, these students are largely concentrated in general schools that display a strong pre-academic orientation. Therefore, they manifest a strong preference for university education. This reduces the salience of information about vocational programmes and magnifies the importance of information about more rewarding university fields and about

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[2] The only exception is that upper class students are more optimistic concerning college returns, even allowing for their objectively better labour market prospects (Abbiati and Barone 2017).

[3] Upper secondary education in Italy comprises general, technical and vocational schools. They all last for five years (between ages 14 and 19), and they afford access to all tertiary programmes, regardless of previous academic performance.

the competitive advantages of postgraduate education and long university courses: these are the options that minimise the risks of downward mobility. Overall, we would thus argue that the BG model suggests a pattern of divergent reactions to the same information inputs about the profitability of educational programmes. To summarise, we can formulate the following hypotheses concerning patterns of class-differentiated reactions to the treatment:

H4: the enrolments of working class treated students shift more towards vocational programmes;

H5: the enrolments of upper class treated students shift more towards more rewarding university fields of study

H6: the enrolments of upper class treated students shift more towards postgraduate university programmes.

The BG model does not consider the educational decisions of students from the petty bourgeoisie because the strategies of intergenerational reproduction of this social class are traditionally less education-based than those of the white collar fractions of the middle class (Breen and Yaish 2006). However, it is well-documented that children of self-employed workers display a strong propensity to invest in vocational programmes, which provide the skills to manage their family business (van de Werfhorst et al. 2003; Cobalti and Schizzerotto 1993). Conversely, white collar families display a strong orientation towards credentialing strategies associated with more ambitious investments in university education (Barone et al. 2010). Therefore, we would assimilate the educational decisions of students from the petty bourgeoisie to the patterns predicted for working class students, while students from white collar families should follow similar strategies as upper class students.

Finally, it should be noted that we have formulated the above hypotheses regarding the social class of the students because the BG model has been conceived to explain social class differentials in education. However, following the same line of reasoning, we can expect that treated children of tertiary graduates are more likely to opt for longer programmes and more rewarding fields, while their counterparts from less educated families are attracted more by tertiary-level vocational programmes. In other words, the risk-aversion mechanism may apply not only to social class reproduction but also to status maintenance motives driven by the differentiated social prestige of educational credentials.

Hence, in the empirical analyses presented below we will first separately consider parental class and parental education as indicators of family background. This approach reflects the traditional perspective of social stratification research that regards parental class and education as interchangeable indicators of the overall social position of the family of origin. However, following Bukodi and Goldthorpe (2013), it may be argued that the influence of parental education and social class reflects distinct mechanisms, when these two indicators are *jointly* fitted in models of educational attainment. The former reflects the degree of familiarity with and information about the educational system, while the latter reflects family economic assets and the position of parents in the structure of employment relations. If this is the case, the impact of our information initiative should be more visible when considering parental educational differentials, which better capture the influence of pre-existing family background on information about the educational system. We will test also this general hypothesis by replicating our analyses with both indicators of students' social origins together in the same model.

3. Experimental design, data collection and modelling strategy

This section describes the design of the study that we conducted to assess the relationships between information barriers and patterns of participation in HE[4]. We first illustrate the sampling, randomisation and data collection procedures of our experimental study; then, we describe the main features of the information treatment. Finally, we present our statistical modelling strategy.

3.1 Sampling, randomisation and data collection

In the spring of 2013, we drew a random sample of 62 high schools located in four Italian provinces (Milano, Vicenza, Bologna, Salerno) covering the main socio-economic areas of the country; this sample was proportionally stratified by province and school track, two relevant predictors of HE enrolment. Within each sampling stratum, we randomly assigned half of the schools to the treatment status and half of them to the control status. The treatment/control groups comprise all senior students of treated/control schools. Hence, our experiment can be characterised as a cluster randomised controlled trials with blocking on sampling strata.

In the school year 2013-2014, we began a longitudinal survey on treated and control students which comprised four waves. The first wave was carried out in October 2013, right before the start of the information initiative, and involved 9,159 students. We administered paper-and-pencil questionnaires in the classrooms to collect data about students' socio-demographics and family resources, as well as their school background, beliefs about the profitability of HE and study plans. During the period from October 2013 to March 2014, we delivered the information initiative in treated schools. The second wave of our longitudinal survey was carried out at the end of the school year (May 2014), after the treatment but before the opening of university registrations. We could thus record whether students had updated their beliefs and study plans before making a final decision. The third wave was fielded in November 2014, when university registrations had closed, and recorded data about enrolment in tertiary programmes and work situations. The results presented in this work refer to this wave concerning the actual decisions of students.

A previous study by Barone et al. (2016) has already analysed the impact of the treatment on student beliefs and study plans (wave 2), showing that the treatment has substantially improved student knowledge of the economic costs and occupational benefits of tertiary programmes. Moreover, this previous study documented in some detail that this field experiment has high internal and external validity: i) only four sampled schools refused to participate in the study and they were easily replaced by schools of the same stratum; ii) the student cumulative response rate at wave 3 was 82% and it was perfectly balanced between treated and control students; iii) the two groups of students were statistically equivalent along a large number of variables before the treatment, thus suggesting that the randomisation worked well; iv) treatment fidelity was high: 90.2% of the students participated in at least two meetings; v) there was no evidence of treatment substitution, nor of contamination between treated and control students. Hence, we are confident that the comparison between these two groups provides an accurate estimate of the causal effects of information on patterns of participation in HE.

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[4] In terms of the occupational returns, in line with the definition adopted in the intervention.

3.2 The information initiative: contents and format

The information initiative provided treated students with detailed information about: i) the direct and indirect costs of university and vocational programmes; ii) the occupational prospects of graduates of these programmes; iii) the chances of successfully completing them. This information was retrieved from the most recent data available at the time, collected by the Italian Statistical Office (ISTAT) in 2011 from large samples of upper secondary and university graduates. Information on university costs and on vocational programmes was collected through ad-hoc surveys in every province where the intervention took place.

Every senior class of treated schools was met separately on three occasions during school time. These meetings were held by professional educators of ONGs, specifically trained and supervised by the research team. The first meeting (October 2013) lasted one hour and provided students with information on university direct costs, indirect costs and opportunities for financial aid. Every student was provided with a personalized estimate of the costs (s)he was expected to face in the preferred university institution and field. We knew that students tend to overestimate the costs of HE. The main message of the first meeting may thus be summarised as follows: "if you wish to go to university, don't be afraid of the costs: they are lower than you think and they are affordable thanks to university allowances and grants".

The second meeting (February 2014) lasted two hours and focused on the occupational prospects of tertiary programmes, compared across four indicators: first job search duration, wage, overeducation risks and horizontal job mismatch risks. We systematically compared high-school diplomas, bachelor's degrees and master's degrees. These data were retrieved from models with extensive controls for the student composition of tertiary programmes, and we plotted predicted values differentiated by socio-economic area of residence.

We devoted close attention to occupational differences among fields of study. After presenting these detailed data, we summarized them in a simple and intuitive way by grouping fields into three categories: occupationally "strong" fields (Engineering, Computing, Medicine and health-related programmes), "weak" fields (the Humanities and the Social Sciences) and "intermediate" fields (the remaining scientific fields, Business & Economics, Law, Psychology and Teacher Education). Strong fields perform well across all above-mentioned labour market indicators with both bachelor's and master's degrees, while weak fields perform poorly on every indicator at both levels. The core message of the second meeting was: "if you are undecided between two fields, and if you care about your future career prospects, take into consideration how these fields perform in the labour market".

The third meeting was scheduled in March 2014 and provided information about the risks of university dropout and delay at graduation, which are comparatively high in Italy (Oecd 2015). We confronted students with data to assess their own dropout risks according to their previous school performance, school track, gender, social origins, and preferred field of study, that is, the main determinants of dropout risks identified by previous studies and for which data were available. Moreover, we introduced tertiary vocational programmes to the students (curricula, duration, costs and financial aid, labour market prospects) and we presented them as a third alternative between enrolment in university and direct labour market entry. Again, the statistical data were summarised into simple, take-home messages and the main suggestion to students was: "before choosing a field of study, read carefully the corresponding study plan and weigh its difficulty against your school background and motivation. If you do not feel prepared enough, consider vocational

programmes as an alternative". Finally, we provided a general recap of the main messages of our information initiative.

3.3 Variables and estimation method

We assess the impact of the counselling initiative by estimating one regression model for each of the educational destinations that could be selected by students after graduating from high school: i. enrolment in a "strong" university field[4]; ii. enrolment in an "intermediate" university field; iii. enrolment in a "weak" university field; iv. enrolment in a tertiary-level vocational programme; v. no tertiary-level enrolment[5]. Each of these five educational states is thus coded into a dummy variable, which is the outcome of each of our models. Moreover, we generated a sixth outcome variable to mark students who enrolled either in a long university course or in a bachelor course but declared that they planned to continue to postgraduate education[6].

In our setting, the main independent variable is a dummy for treatment status (taking value 1 if a student is treated). We use linear probability models and estimate Average Treatment effects on the Treated (ATT) to adjust for treatment non-compliance, since a small minority of students did not attend the educational guidance initiative entirely[7]. Causal estimates of treatment effects are thus retrieved from two-stage instrumental variable models in which the actual participation of each student in the school meetings is the independent variable and the randomisation plays as exogenous instrument. Every model controls for the two sampling stratification variables (province and school track) and for students' study plans before the treatment (data collected in the wave 1), to enhance the statistical power of our estimates. Standard errors are clustered at the school level.

4. Results

In table 1 we present the distribution of the educational destinations chosen by control students, in order to describe the patterns of student enrolments in the absence of the treatment. The first column reports the overall share of control students enrolling in strong (13.9%), intermediate (30.6%) or weak (16.1%) university fields. Hence, altogether three-fifths (60.6%) of the students continue to university, while only one out of thirty (3%) enrols in vocational programmes. Quite obviously, the remaining students (36.4%) do not attend HE or, much less often, they do not graduate from high school ('other paths', *see* footnote 7).

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[5] This category comprises students who enter the labour market or remain inactive after the diploma. We include in this category also the few cases of students who failed to pass the final upper secondary exam (2.9%). Due to sample size constraints, these latter students cannot form a separate category, but at the same they cannot be dropped out of the analysis to avoid sample selection. We did not detect any difference between treated and control students regarding high school retention, therefore this choice does not influence our results.

[6] For students who enrol in bachelor courses, we cannot observe their continuation to the master's level, due to right-censoring. Therefore, we surveyed these students about their plans to continue. Hence, this outcome variable cannot be regarded as a fully behavioural outcome. We will refer to this composite outcome as "long college programmes".

[7] A student is considered *actually treated* if s(he) was enrolled in a treated school and participated in at least two meetings: among the students enrolled in treated schools who answered to the third wave, 90.2% is as actually treated.

As seen in table 1, social origins display a powerful influence on enrolment decisions: 17.2% of the children of tertiary graduates do not enrol in HE, but this value rises to 60.7% if parents do not have a high school diploma. Conversely, students from low-educated families are overrepresented in postsecondary vocational programmes: differences are small in absolute value, but we can see that enrolments in these programmes are twice as high among children of lower secondary graduates (3.5%) than among children of tertiary graduates (1.8%). Regarding fields of study, the latter are twice as likely to opt for weak or intermediate fields than their counterparts from low-educated families, and they are three times more likely to select strong fields (22.1% vs. 7.1%). This means that, among students who go to university, children of tertiary graduates are overrepresented in the most rewarding fields. Finally, table 2 shows that parental education displays a strong influence on the chances of enrolling in long university programmes (61.1% vs. 22%). The patterns of social class differences are less evident as regards tertiary vocational programmes, but for the rest they closely replicate differentials by parental education. As expected, family background affects not only the overall propensity to invest in HE but also the preference for university education, for more rewarding fields and for long programmes.

Table 1 – Distribution of educational paths among controls. Percentages

Outcome variable	Whole sample	PARENTAL EDUCATION			PARENTAL SOCIAL CLASS			
		Tertiary	Upper Secondary	Lower secondary	Higher and lower Service class	White collar, higher grade	Petty bourgeoisie	Working class[a]
Strong fields of study	13.9	22.1	12.9	7.1	17.9	15.7	9.9	10.3
Intermediate fields of study	30.6	39.3	31.0	19.2	42.4	33.3	28.1	18.5
Weak fields of study	16.1	19.6	17.0	9.6	19.2	18.6	13.4	11.7
Tertiary Vocational	3.0	1.8	3.2	3.5	2.5	3.4	2.8	2.7
Other paths	36.4	17.2	35.9	60.7	18.0	29.1	45.8	56.8
Total	100	100	100	100	100	100	100	100
Long university programmes	41.9	61.1	40.8	22.0	59.5	46.4	36.1	24.1

[a] Unskilled non manual workers and skilled and unskilled manual workers

We can now consider whether the treatment has impacted on these enrolment patterns. Table 2 presents the estimates of the causal effects of our information initiative on each of the educational paths that students could choose after graduating from high school. Starting from the main effects of the treatment, students were discouraged from choosing weak fields (-2.9%). We can appreciate that this is a rather strong effect once we consider that enrolments in weak fields involve 16.1% of control students (*see* tab. 1): this means that the intervention resulted in a reduction of almost one-fifth (-18%) of this subpopulation. However, although students were provided with information concerning strong fields, there was no overall, significant shift towards them. Hence, our hypothesis 1 concerning the shift away from weak fields and into more rewarding fields is only partially supported. Treated students moved often into postsecondary vocational programmes (+1.6%). This coefficient is small in absolute value, but if we compare it with the tertiary vocational enrolment rate of control students (3%), we conclude that vocational programmes enjoyed a relative increase by 51%. Therefore, hypothesis 3 concerning the positive impact of the treatment on tertiary vocational enrolments is supported. Finally, the treatment increased only marginally and non-significantly the propensity to invest in postgraduate education or long university courses (+0,9%), in contrast with hypothesis 2. Overall, the counselling intervention did not appreciably increase or decrease the student propensity to invest in HE, but rather fuelled a redistribution between its segments.

However, by comparing treatment effects for students of different social origins (table 2, left panel), we see that these main treatment effects hide some significant heterogeneity by family background. The redistribution between weak fields and vocational programmes involved predominantly students from less educated families; children of lower secondary graduates were diverted also from moderately rewarding fields (-4.3%). As regards children of tertiary graduates, the point estimates are in the same direction but they are not statistically significant, while we detect a strong and significant effect (+5.2%) in favour of the more rewarding fields of the intermediate category. As regards enrolments in long university programmes, we detect no significant treatment effect, although the pattern of point estimates suggests that the higher the parental education, the stronger the effect of encouragement towards longer programmes. As expected, we observe heterogeneous reactions to the treatment, but the pattern of results does not completely conform to our hypothesis. Overall, less educated families *opted out* of university education, while more educated families opted for more rewarding field options *within* university education.

Table 2. Effects of the intervention on HE choice (ATT), by parental education and by parental social class. Percentages

	Main effect	PARENTAL EDUCATION			PARENTAL SOCIAL CLASS			
		Tertiary	Upper Secondary	Lower secondary	Higher and lower Service class	White collar, higher grade	Petty bourgeoisie	Working class[a]
Strong fields of study	-0.1	-1.5	0.5	-0.7	2.6	-1.5	0.0	0.4
	(1.1)	(2.5)	(1.2)	(1.3)	(2.7)	(1.6)	(1.3)	(1.3)
Intermediate fields of study	0.5	5.2*	-0.7	-4.3**	-2.1	2.5	-2.9	-0.6
	(1.5)	(3.1)	(1.6)	(2.1)	(2.8)	(1.9)	(2.6)	(1.8)
Weak fields of study	-2.9**	-3.2	-3.2**	-0.7	-1.4	-2.6	-4.5***	-1.8
	(1.3)	(2.4)	(1.4)	(1.6)	(1.7)	(1.8)	(1.8)	(1.5)
Tertiary Vocational	1.6**	1.5	1.8**	2.0*	1.8	0.2	4.4***	2.1**
	(0.6)	(1.0)	(0.7)	(1.1)	(1.2)	(0.8)	(1.4)	(0.9)
Other paths	0.8	-2.6	2.0	3.2	-1.8	1.2	3.4	0.6
	(1.5)	(1.9)	(1.7)	(2.6)	(2.2)	(2.0)	(2.4)	(2.0)
Continuation to the master's level or enrolment in a long university course	0.926	2.2	0.5	-1.7	1.0	0.7	-3.0	-3.7***
	(1.43)	(2.69)	(1.5)	(1.69)	(2.49)	(2.02)	(2.39)	(1.75)
N	7,523	1,874	4,217	1,364	1,583	2,838	1,222	1,767

[a] Unskilled non manual workers and skilled and unskilled manual workers.
* p<0.1; ** p<0.05; *** p<0.01.

Table 3. Effects of the intervention on HE choice, by parental education and social class. Percentages

	Chosen educational path					Long university paths
	Strong fields	Medium fields	Weak fields	Vocational	Other paths	
Treatment	-0.0	-0.4	-1.8	0.5	1.0	0.3
	(1.2)	(1.7)	(1.5)	(0.6)	(1.8)	(1.8)
Service class and skilled white collars (ref.)						
Petty bourgeoisie	-1.1	-3.9**	0.3	-1.5*	4.1**	-1.9
	(1.3)	(1.7)	(1.6)	(0.8)	(1.6)	(1.8)
Working class[a]	0.8	-9.1***	-1.9	-1.8**	8.5***	-7.5***
	(1.3)	(1.9)	(1.4)	(0.7)	(1.8)	(1.7)
Years of education	0.5***	0.2	0.4**	-0.1	-0.8***	0.7***
	(0.2)	(0.2)	(0.1)	(0.1)	(0.2)	(0.2)
Treatment * Petty bourgeoisie	0.6	-0.9	-3.8*	4.0***	1.2	-2.5
	(1.8)	(2.6)	(2.2)	(1.4)	(2.7)	(2.6)
Treatment * Working class	-0.6	2.4	-0.7	1.4	-1.4	4.2
	(1.6)	(2.6)	(1.8)	(1.0)	(2.6)	(2.7)
Treatment * parental education (in years centred around the mean)	0.0	0.8**	-0.4	0.1	-0.4	0.4
	(0.2)	(0.3)	(0.3)	(0.1)	(0.3)	(0.3)
Constant	26.1***	35.1***	23.2***	11.6***	8.9***	35.5***
	(3.1)	(3.5)	(2.6)	(2.6)	(2.4)	(3.2)
Control for pre-treatment intentions	Yes	Yes	Yes	Yes	Yes	Yes
Control for stratification variables	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,361	7,361	7,361	7,361	7,361	7,384
R-squared	0.3	0.2	0.3	0.0	0.4	0.4

[a] Unskilled non manual workers and skilled and unskilled manual workers.

* p<0.1; ** p<0.05; *** p<0.01.

The patterns of treatment heterogeneity by parental class are similar. For children of the working class and of the petty bourgeoisie, we detect a pattern of redistribution from weak university fields into vocational programmes, in line with hypotheses 4 and 5. Surprisingly, working class students increased also their propensity to select long programmes, in contrast with hypothesis 6. For students from service class and skilled white collar families, we detect no significant effect, but estimates point to a contraction of weak fields in favour of strong fields for the service class (+2.6%) and of intermediate fields for skilled white collar workers (+2.6%). Hence, the analyses by social class confirm that the impact of the treatment diverged according to the social origins of the students.

We also ran a model on the whole sample where we interacted the treatment with both parental education and parental class (tab. 3). To gain statistical power, we coded parental education in year-equivalents and we merged the service class and the skilled white collars into a single reference category. With this specification, the net effect of parental education may tap the social status and informational resources of the family more directly, while the net class effect may refer more directly to family economic resources (Bukodi and Goldthorpe 2013)[8].

As seen, in the more educated families, we detect a sizeable redistribution towards more rewarding fields (-0.8% for every additional year of parental education) and an increase, although not statistically significant, in the preference for long university programmes. For the petty bourgeoisie, and less so for the working class, we find again evidence of a redistribution from weak fields to vocational programmes. Overall, this specification confirms the picture emerging from the previous models and suggests that the redistribution across fields within university education is driven more by cultural and status maintenance dynamics, while the propensity to opt for the shorter and less expensive tertiary vocational programmes reflects more the role of economic constraints.

The results reported above are robust to several alternative modelling specifications. First, using Intention-to-Treat models, instead of ATT estimators, does not affect our conclusions. Second, controlling or not controlling for pre-treatment study intentions does not change the pattern of results. Third, we have tested both more and less detailed specifications for fields of study, and the pattern of results did not change either (results available upon request).

Finally, we carried out several additional analyses to explore impacts heterogeneity. First, we inspected the internal heterogeneity of the upper class in models equivalent to those presented in table 2 by separating children of entrepreneurs (3.7% of the whole sample) from those of managers and professionals. We found that the former were much more reactive to our information initiative (*see* tab. A1 in the appendix): for children of entrepreneurs, enrolments in strong fields increased by 8.2%[9], a finding that echoes the higher reactivity to the treatment of the petty bourgeoisie.

Second, we assessed treatment heterogeneity by school track, and we found that the negative treatment effect on attendance of weak university fields involves only students from general high schools, that is, those students who more often intend to continue to university education. Conversely, the positive treatment effect on the attendance of vocational programmes involves only students of technical and vocational tracks, who plan less often to continue to university (*see* tab. A2 in the appendix). This pattern elucidates the differentiated impact of the treatment across social groups because it is well-documented that children of tertiary graduates and of upper class families are overrepresented in the general tracks, whereas lower social groups are overrepresented in technical and vocational tracks.

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[8] In a model with interactions it is impossible to use ATT estimates. We show hence ITT estimates, based on the simple comparison between treated and control students. This procedure provide unbiased *intention-to-treat* effects, that is the effect of being assigned to the treatment vs the control group (namely, in our case, it does not take into account the presence of a 10% of students assigned to treatment that did not take part to the counseling).

[9] The estimates also indicate that enrolments in postsecondary vocational programmes increased (+5.5%) for children of entrepreneurs, mainly at the expense of enrolments in intermediate fields (-15.7%). However, this pattern is not robust across modelling specifications, therefore we do not put much emphasis on it.

6. Concluding remarks

This study assessed whether information barriers have a causal effect on the patterns of enrolments in HE and related socio-economic differentials in Italy, thus hindering the equity and the efficiency of this allocation process. For this purpose, we designed a field experiment that involved high school seniors in a most comprehensive and intensive information initiative about the profitability of investments in HE and we assessed their reactions by means of a longitudinal survey.

The results of our field experiment indicate that providing students with detailed information concerning HE options can indeed foster a more efficient allocation of students among tertiary-level programmes. Compared to the control group, treated students reduced substantially their propensity to choose weak fields, which currently face strong credential inflation in Italy, and increased their participation in vocational programmes, which are more aligned with the skill demands of the labour market. This result suggests that students are poorly aware of the magnitude of the disadvantage of weak fields and that there is a student demand for more applied-oriented courses that goes unmet, due to a lack of information concerning their existence and characteristics. At the same time, students did not move into occupationally strong university fields, even though they had been informed of their high profitability. These fields entail strong access barriers, either because they are math-intensive (Engineering and Computing) or because they entail selective entry examinations (Medicine and health-related fields). Moreover, these fields comprise a small number of disciplines and thus accommodate the subject matter preferences of a minority of students. Overall, we conclude that information barriers drive to some extent an inefficient allocation of students across tertiary programmes.

Moreover, we found that the reactions of students to this information initiative differed according to their social background. After learning about the profitability of university fields of study, the offspring of low-educated parents opted for a safer investment in vocational options. In contrast, children of tertiary graduates reacted to the same information by enhancing their participation in more rewarding university fields. Similarly, the redistribution from weak fields to vocational programmes involved only the children of the petty bourgeoisie and of the working class. For children of the service class and of skilled white collars we cannot reject the null hypothesis that the treatment had no effect, and if anything, the point estimates suggest an increased propensity to invest in more rewarding fields.

The risk-aversion mechanism of the BG model may shed light on these differentiated treatment effects. If educational investment decisions are primarily driven by the objective to avoid social demotion relative to the social class or level of education of the parents, it is unsurprising that upper class students and children of tertiary graduates did not move into vocational programmes. The status-maintenance mechanism "compels" them to invest in university education: they therefore reacted to the information initiative by investing in more rewarding fields.

Conversely, for students of lower social origins, participation in university education is not necessary to reproduce the social position of their families. Therefore, these students regard tertiary vocational programmes as a safer and appealing alternative that can promote short-range upward mobility into skilled technical positions. Indeed, these students frequently attended vocational and technical tracks of upper secondary education, and postsecondary vocational programmes are more coherent with their school background than more academically challenging university courses. This cautious strategy is even more understandable if we take into account that Italian HE displays a comparatively high dropout rate, which hits working class students from technical and vocational tracks in

particular (Oecd 2015). Furthermore, economic constraints may have strengthened the preference for vocational programmes, which are shorter and thus entail lower direct and indirect costs. It should be considered in this regard that university fees are comparatively high in Italy and income support to less affluent students is limited (Eurydice 2016). To the extent that our information initiative disclosed this discouraging picture to students, it is unsurprising that low-status students were not encouraged to invest more in university education. Interestingly, we found that the children of the petty bourgeoisie and of entrepreneurs, that is to say, from the self-employed portions of the middle and upper classes, were most reactive to the treatment. These social groups have greater economic resources than working class families and are less exposed to the risks of educational failure because they are less dependent on educational credentials to remain in the same social position as their parents by inheriting the family business.

Overall, we may conclude that students in both low and high social positions improved their occupational prospects, thanks to the availability of information that is not usually provided in ordinary counselling activities. However, we cannot conclude that this information initiative benefited working class students more. If our interpretation is correct, this is because the messages conveyed by the treatment were processed differently according to their class-specific sets of preferences, opportunities and constraints.

These experimental results thus challenge the claim that reducing information barriers is an effective means of reducing social inequalities in the patterns of participation in HE. On one hand, information is not enough if economic support to less well-off students is limited and the occupational prospects of university graduates are modest: the actual incentives to invest in university education for working class students are reduced, while upper class students will do so anyway to preserve the social position of their family of origin. On the other hand, one has to take into account that information may have arrived too late in a country where tracking is highly consequential for participation in HE (Triventi and Trivellato 2015). Reducing educational inequalities without redressing these structural and institutional deficiencies may prove a futile effort.

References

Abbiati, G., and Barone C. 2017 'Is university education worth the investment? The expectations of upper secondary school seniors and the role of family background', *forthcoming in Rationality and Society.*

Assirelli G. 2016 'La redditività dell'istruzione universitaria nell'Italia', *paper presented at the ISTAT 90th anniversary conference, Rome 26th November 2016*

Avery, C., and Kane, T.J. 2004 'Student perceptions of college opportunities. The Boston COACH program' in Hoxby C.M. (ed.) *College Choices: The Economics of Where to Go, When to Go, and How to Pay For* It, Chicago: University of Chicago Press.

Barone C., Luijkx R. and Schizzerotto A. 2010 'Elogio dei grandi numeri: il lento declino delle disuguaglianze nelle opportunità di istruzione in Italia', *Polis* XXIV(1): 5-34.

Barone, C., Schizzerotto, A., Abbiati, G. and Argentin, G. 2016 'Information barriers, social inequality and plans for Higher Education: evidence from a field experiment', *forthcoming in European Sociological Review.*

Bettinger, E., Long, B., Oreopoulos, P. and Sanbonmatsu, L. 2009 'The role of simplification and information in college decisions: Results from the H&R Block FAFSA experiment' *Working paper No. w15361*, National Bureau of Economic Research.

Betts, J. R. 1996 'What do students know about wages? Evidence from a survey of undergraduates', *Journal of Human Resources*, 31(1): 27-56.

Blossfeld H.-P. and Shavit Y. (eds) 1993 *Changing Educational Attainment in Thirteen Countries*, Boulder, Westview Press.

Boliver, V. 2011 'Expansion, differentiation, and the persistence of social class inequalities in British higher education', *Higher Education*, 61(3): 229-242.

Breen, R., and Goldthorpe, J.H. 1997 'Explaining Educational Differentials: Towards a Formal Rational Action Theory', *Rationality and Society*, 9(3): 275-305.

Breen, R. and Yaish, M. 2006 'Testing the Breen-Goldthorpe model of educational decision making', in Morgan, S.L., Grusky, D. and Fields. G., *Mobility and inequality: frontiers of research in sociology and economics*, Stanford, Stanford University Press

Bukodi, E. and Goldthorpe J.H. 2013 'Decomposing "Social Origins": The Effects of Parents' Class, Status, and Education on the Educational Attainment of Their Children', *European Sociological Review*, 29(5): 1024-1039.

Cammelli, A., and Gasperoni, G. 2015 '16th Almalaurea report on Italian university graduates' profile' *Almalaurea Working Paper No. 74.*

Cobalti, A., Schizzerotto A. 1993 'Inequality of educational opportunity in Italy', in Blossfeld H.-P. and Shavit Y. (eds.), *Changing Educational Attainment in Thirteen Countries*, Boulder, Westview Press.

Davies, S., and Guppy, N. 1997 'Fields of study, college selectivity, and student inequalities in higher education', *Social forces*, 75(4): 1417-1438.

Dinkelman, T. and Martínez A.C., 2014 'Investing in schooling in Chile: The role of information about financial aid for higher education', *Review of Economics and Statistics*, 96(2): 244-257.

Erikson, R., and Jonsson, J. (eds) 1996 *Can education be equalized? The Swedish case in comparative perspective,* Boulder, Westview Press.

Eurydice 2016 *National Student Fee and Support Systems in European Higher Education*, Brussels, European Commission.

Gambetta, D. 1987 *Were they pushed or did they jump?: Individual decision mechanisms in education,* Cambridge, Cambridge University Press.

Grodsky, E. and Jones, M.T. 2007 'Real and imagined barriers to college entry' *Social Science Research*, 36: 745–766.

Indire 2015 *L'innovazione negli istituti tecnici superiori*, Firenze, Indire.

Jackson M. (ed.) (2013) *Determined to succeed? Performance versus choice in educational attainment.* Stanford, Stanford University Press.

Jackson, M., Luijkx, R., Pollak, R., Vallet, L.-A. and van de Werfhorst, H.G. 2008 'Educational fields of study and the intergenerational mobility process in comparative perspective', *International Journal of Comparative Sociology*, 49(4/5): 369-388.

Kahneman, D. 2011 *Thinking, Fast and Slow,* New York, Farrar, Strauss, Giroux.

Kerr, S., Pekkarinen, P., Sarvimäki, M. and Uusitalo, R. 2014 'Educational Choice and Information on Labor Market Prospects: A Randomized Field Experiment.' *Working Paper.*

Loyalka, P., Song, Y., Wei, J., Zhong, W., and Rozelle, S. 2013. 'Information, college decisions and financial aid: Evidence from a cluster-randomized controlled trial in China.' *Economics of Education Review* 36: 26-40.

Lucas, S. 2001 'Effectively mantained inequality : education transitions, track mobility, and social background effects', *American Journal of Sociology*, 106(6) :1642-1690.

Manski, C.F. 1993 'Adolescent econometricians: How do youth infer the returns to schooling?' in Clotfelter C.T. and Rothschild M., *Studies of supply and demand in higher education,* Chicago, University of Chicago Press.

McGuigan, M., McNally, S., and Wyness, G. 2012 'Student awareness of costs and benefits of educational decisions' *CEE Discussion Papers* 139.

Morgan, S. 2005 *On the edge of commitment*, Stanford, Stanford University Press.

Oecd 2015 *Education at a Glance* – 2015 edition, Paris, OECD.

Oreopoulos, P., and Dunn, R. 2013. 'Information and College Access: Evidence from a Randomized Field Experiment', *The Scandinavian Journal of Economics* 115 (1): 3-26.

Perna, L.W. 2006 'Understanding the relationship between information about college prices and financial aid and students' college-related behaviors.' *American Behavioral Scientist*, 49(12): 1620-1635.

Shavit, Y., Gamoran, A. (eds). 2007 *Stratification in higher education: A comparative study.* Stanford, Stanford University Press.

Tolsma, J., Need, A., and De Jong, U. 2010 'Explaining participation differentials in Dutch higher education: The impact of subjective success probabilities on level choice and field choice', *European Sociological Review* 26 (2): 235-252.

Triventi, M. 2013 'Stratification in Higher Education and Its Relationship with Social Inequality: A Comparative Study of 11 European Countries', *European Sociological Review* 29 (3): 489-502.

Triventi, M., and Trivellato, P. 2015 L'istruzione superiore, Rome, Carocci.

Usher, A. 2005 *A Little Knowledge is A Dangerous Thing*, Toronto, Educational Policy Institute.

Van de Werfhorst, H.G., Sullivan, A. and Cheung, S.Y. 2003 'Social class, ability and choice of subject in secondary and tertiary education in Britain' *British Educational Research Journal*, 29(1): 41-62.

Wiswall, M., and Zafar, B. 2015 'How Do College Students Respond to Public Information about Earnings?' *Journal of Human Capital*, 9(2): 117-169.

Wolter, S.C. 2000. 'Wage expectations: a comparison of Swiss and US students.' *Kyklos* 53(1): 51-69.

Appendix

Table A1. Effects of the intervention on HE choice (ATT), offspring of entrepreneurs only. Percentages

Outcome	Effect
Strong fields of study	8.24**
	(4.17)
Intermediate fields of study	-15.7**
	(4.6)
Weak fields of study	1.13
	(3.47)
Tertiary Vocational	5.48***
	(1.71)
Other paths	-1.47
	(4.53)
Continuation to the master's level or enrolment in a long university course	-.264
	(6.76)
N	277

* p<0.1; ** p<0.05; *** p<0.01.

Table A2. Effects of the intervention on HE choice (ATT), by secondary school track. Percentages

Outcome	Academic	Technical	Vocational
Strong fields of study	0.946	1.207	-2.597*
	(1.372)	(1.006)	(1.446)
Intermediate fields of study	1.691	-2.056	-1.009
	(2.092)	(2.241)	(2.890)
Weak fields of study	-4.118**	0.192	0.0043
	(1.733)	(1.189)	(0.986)
Tertiary Vocational	0.683	1.655*	3.289
	(0.637)	(0.930)	(1.960)
Other paths	0.690	-0.653	1.907
	(1.843)	(2.218)	(3.620)
Continuation to the master's level or enrolment in a long university course	1.85	-0.357	1.25
	(2.4)	(2.04)	(1.83)
N	*3,899*	*2,418*	*1,277*

* p<0.1; ** p<0.05; *** p<0.01.