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Our research is part of “Informed Educational Choice”, a large project that accompanies other works devoted to examining households’ sustainability (Spoke 3) through the lenses of human capital investments (Work Package #2). Using newly collected survey data, we assess the current trend in young adults’ educational and monetary and non-monetary expectations. We interview students attending the last year of secondary school in Italy, who are about to make their decision about post-secondary education (whether to enroll to university or not, and which field of study to choose).
We measure their expectations in terms of monetary and non-monetary returns to education, and we create indicators that summarize those expectations on top of how much they differ from current labor market data whenever available. We also collect a wide range of demographic data and educational preferences which can further inform us on the determinants of students’ investment in human capital. We also interview a sub-set of students one year later and create an indicator to assess whether their expected choices regarding post-secondary education materialized. Importantly, because we interview a representative sample of students nationwide, both females and males, and from different types of high schools (lyceums and technical schools) we can study the heterogenous answers of students alongside these relevant dimensions.

An overview of the project *Informed Educational Choice*[1]

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February 2026

Abstract

Our research is part of "Informed Educational Choice", a large project that accompanies other works devoted to examining households' sustainability (Spoke 3) through the lenses of human capital investments (Work Package #2). Using newly collected survey data, we assess the current trend in young adults' educational and monetary and non-monetary expectations. We interview students attending the last year of secondary school in Italy, who are about to make their decision about post-secondary education (whether to enroll to university or not, and which field of study to choose). We measure their expectations in terms of monetary and non-monetary returns to education, and we create indicators that summarize those expectations on top of how much they differ from current labor market data whenever available. We also collect a wide range of demographic data and educational preferences which can further inform us on the determinants of students' investment in human capital. We also interview a sub-set of students one year later and create an indicator to assess whether their expected choices regarding post-secondary education materialized. Importantly, because we interview a representative sample of students nationwide, both females and males, and from different types of high schools (lyceums and technical schools) we can study the heterogenous answers of students alongside these relevant dimensions.

JEL Code: I21, I23

Keywords: Intended college choice, High school students, Italy

[1] This study was funded by the European Union - *NextGenerationEU*, Mission 4, Component 2, in the framework of the *GRINS -Growing Resilient, INclusive and Sustainable* project (GRINS PE00000018 – CUP C93C22005270001) and it is included in the Work Package N.2 (Human Capital) Spoke N,3 (Household Sustainability). The views and opinions expressed are solely those of the authors and do not necessarily reflect those of the European.

1. Introduction

The project "Informed Educational Choice" constitutes an integral component of an extensive array of works devoted to examining households' sustainability (Spoke 3) through the lenses of human capital investments (Work Package #2). The saliency of this topic could not be overstated, particularly against the backdrop of the economic and financial upheavals that have characterized Italy over the last two decades. Meanwhile, the recent pandemic has left Italian households particularly vulnerable to socio-economic shocks, making it more than ever necessary to provide families and individuals with the relevant tools and knowledge to face their economic decisions.

The economic actors of the Spoke 3 are households and their members, who often need to make choices under uncertainty, with limited information, or facing limitations in their ability to process it. The overarching goal of the project is to bridge this informational divide, especially concerning one of the pivotal decisions young adults encounter in their lives: their investment in education. There is a vast, rooted and growing economic literature that suggest that human capital, as captured by individuals' education, is an important determinant of people lifelong income distribution (among others, the seminal works by Becker and Chiswick, 1966, and Mincer, 1974, and other crucial works by Nobel laureate Heckman, 2000). Therefore, being able to make such decision with as much information as possible is crucial for the generations of young adults who will face the socio-economic consequences of the COVID-19 pandemic and the long-lasting consequences of Italy's struggling ability to recover from the financial crisis.

The aim of project "Informed Educational Choice" is twofold. First, through a detailed and exhaustive survey delivered to final-year high school students in Italy, who are in the process of opting in for their post-secondary education or entering the labour market, we are able to assess the current trend in young adults' educational and monetary and non-monetary expectations. The survey, therefore, takes a snapshot of what are the factors that young adults perceive as important when deciding whether to enter university or not, and which discipline to focus their studies on. We believe it is extremely important to understand this phenomenon, as choices after high school have a direct impact on young adults' future employment, and therefore on their future household sustainability. With the survey data, we intend to write academic papers that can inform policymakers on these subjects. Two papers have already been written: "Intended college major choice and the inheritance of majors" (Economic Letters, 2025), and "Tastes, ability or expected wages? The intended choice of college majors by students in Italy" (a current GRINS Working Paper).

Second, measuring students' expectations in terms of monetary and non-monetary returns to education, we create indicators that summarize those expectations on top of how much they differ from current labor market data whenever available.

Specifically by comparing students' expectations in terms of economic returns from their university choices with modern and detailed data on actual job-specific wages, we are able to assess if students base their educational choices on rational expectations, and if the information they have regarding their future employability in the moment they make their post-secondary education choices are correct. Thanks to this comparison, we aim to help closing the likely informational gaps that exist between students' expectations and real employment outcomes, providing schools and young adults with more accurate details on the Italian labor market, thus helping them making *informed educational choices*. We believe this is fundamental given some alarming facts that describe recent trends in the Italian university environment. To give some examples, 14% of university students drop out after the first year; less than 4 out of 10 students enrolled in a bachelor degree graduates on time; females are severely under-represented across technical and scientific fields of study although their university enrollment rates are overall higher.

Finally, focusing on non-monetary returns to education - such as job-related characteristics - we highlight the importance students attach to these aspects when making educational choices, dimensions that are increasingly relevant in a context where young people place growing emphasis on mental wellbeing.

The report is organized as follows: Section 2 reviews the relevant literature, Section 3 describes the study sample, Section 4 describes our survey and presents the main items. Finally, Section 5 provides a series of aggregate indicators on expected monetary and non-monetary returns to education, and on post-secondary educational choice (expected and realized), which can be useful for policymakers, families, and schools in gaining clearer insights into students' expectations when choosing post-secondary education.

2. Literature review

The literature on human capital investment is vast and growing. Bridging the seminal standard models of schooling decisions (Becker, 1993; Ben-Porath, 1967; Mincer, 1974) with the more recent state-of-the-art experimental literature (Wiswall and Zafar, 2015a, 2015b, 2018, 2021) is a plethora of well published research that focused particularly on the role that different types of information have on schooling choices. This literature includes works that are related to each other but also complement themselves by focusing on different population samples or type of information asymmetry examined.

We will now provide a short summary of this literature to review the most salient papers related to ours and give examples on how our research agenda compares to them.

A dimension alongside the literature splits concerns the geography of the population studied. Much work has indeed focused on the American continent (for the USA see for instance Arcidiacono et al. 2011; Avery, 2010; Baker et al. 2018; Bleemer and Zafar, 2018; Conlon, 2021; Patnaik et al. 2020; Ruder and Van Noy, 2017; Winswall and Zafar, 2015a, 2015b, 2018, 2021; Zafar, 2013; for Central and South America remarkable papers are Attanasio and Kaufmann, 2014; Avitable and de Hoyos, 2018; Bonilla-Mejía et al. 2019; Dinkelman and Martínez, 2014; Hastings et al. 2015; Jensen, 2010; and for Canada an example is Oreopoulos and Dunn, 2013), with much less attention on other continents including the European one. Important exceptions are the studies by Peter and Zambre (2017) and Peter et al. (2018) which focus on Germany, Kerr, et al. (2020) who look at Finland, and McGuigan et al. (2016) for the United Kingdom. Relevant for our context are especially those that are set in the Italian country, as Ballarino et al. (2022), Barone et al. (2017), and Barone et al. (2019). We contribute to these papers as we provide more evidence-based research for an understudied continent, and we also improve on the ones that are already set in Italy by extending the geographical coverage from the four provinces that they study, to a more heterogeneous representativeness of the whole country.

Another relevant aspect to consider is the sample of students observed, and how they vary with respect to some salient characteristics. For example, the literature covering the USA is overwhelmingly focused on high-achieving students attending private universities (Avery, 2010; Wiswall and Zafar, 2015a, 2015b, 2018, 2021; Zafar, 2013), while the one covering Central and South America mainly targets students coming from disadvantaged backgrounds (Attanasio and Kaufmann, 2014; Bonilla-Mejía et al. 2019). In our research we draw from a heterogeneous pool of students therefore not selecting on the basis of merit or economic characteristics. Further, since we look at the whole country and not just at four provinces, as in the above cited papers covering the Italian peninsula, we leverage over yet unexplored Italian socio-economic realities.

In parallel, we also contribute to the literature that studies human capital investments not only for the monetary returns, but also for other motivations - for instance, when there are preferences for other job characteristics such as working-time flexibility or remote working possibility. We do so by asking a long array of questions about the returns for non-monetary aspects to different educational scenario, therefore taking into account more elements than what is often considered in our reference literature.

Other two features make our research particularly important. First, while works on human capital investments are large in number, they are vastly based on surveys or administrative data collected before the outburst of the recent pandemic. Meanwhile,

there exists evidence on how shocks shape individual choices on human capital investments (for instance, Dasgupta and Ajwad, 2011). We believe our study can contribute to unveil if educational choices after COVID-19 are on different trajectories than earlier generations' ones.

Second, while the papers cited so far try to assess the role of new information on human capital decision investments, in our project we remain agnostic on the role of such signal, and rather use our resources into detailing a multitude of different elements that might play a role into schooling choices. The data we collect will help to draw a comprehensive picture of what are the reasons behind high schoolers university choices both in the extensive margin (whether to enroll or not) and in an intensive-fashion margin (which field of study to pursue). With this information, we can then model human capital investment choices and inform the next steps of future research on Italian return to education opportunities.

1. The study sample

The study consists of two student-populations: students attending lyceum and students attending technical schools. The first population is interviewed twice: first between November 2023 and May 2024, when students are at their last year of high school, thus about to make post-secondary schooling decisions, and between April and October 2025 to follow up with them (only for a sub-sample of students). Students attending technical schools, instead, where interviewed only once, between January and April 2025, also during their last year of high-school.

Students were reached directly through their schools, which were in turn recruited by the survey provider we contracted by way of contacting school's principals via email.

The final sample consists of 106 lyceums and 85 technical schools distributed nationwide. For both types we reached representative quotas based on geographical areas (5 areas, NUTS1). Further, for technical schools, we were able to preserve representative quotas also at the level of two school tracks: technological and business oriented.

The average number of classes involved is 2 per school, with the option to interview 1 or 3 classes per school, estimating an average of 15 students per class. At the end of the surveys, we ended up with 4,137 lyceum students and 2,924 technical school students. 12.7 percent of lyceum students (525) were further interviewed during the follow up phase.

2. The survey instrument

2.1 First interview: last year students at lyceum and technical schools

The survey starts with a welcoming message that aims to familiarize students with the content of the survey, to describe its length and features, and to remind respondents that we are asking for their opinions rather than testing their knowledge. Students are further asked to read an official document regarding the processing of their personal data and give their consent before the real survey begins.

The questionnaire for lyceum (technical school) students consists of 55 (60) questions divided into four different sections on demographic information, expectations about monetary returns, expectations about job characteristics, and on preferences, skills and attitudes.

Section I: Demographic information and family background.

The first section gathers general demographic information about students and their family. We ask information on students' gender, age, immigration status, and on family background such as parent's immigration status, occupational status, educational level of family members including older brothers/sisters and grandparents, and field of study of family members if tertiary educated. The answers to these questions are closed-ended and include an option for students who prefer not to provide the requested information. Through this section we aim to anchor students' educational profile and choices to their family's background. There is, indeed, a large theoretical and empirical literature that show the role that intergenerational accumulation of human capital plays on social mobility (among others, Becker 1986; Card et al., 2022) and it is therefore important to consider this aspect in our study.

Section II: Economic expectations.

The second part of the questionnaire collects information on students' beliefs about the monetary returns of tertiary education at different points in time of their future life, when they are 30 and 40 years old. Questions are designed to recover this information for different educational scenarios, regardless of which field of study students intend to apply to in the future. Specifically, for lyceums, the scenarios are seven: one in which no tertiary education is pursued, and six where we group different macro-categories of fields of study. These six categories are: 1) Civil Engineering, Architecture, and Design; 2) Engineering, Information Communication Technology, Mathematics, Physics, and Natural Sciences; 3) Economics, Business, and Law; 4) Medicine, Veterinary Medicine,

and Health Professions; 5) Psychology, Political Sciences, and Other Social Sciences; 6) Literary Studies, Philosophy, and Humanities. Therefore, students go through a battery of questions that are each repeated seven times: one for every different educational scenario. For technical school students, we added a further eighth scenario for attending Higher Technical Training Instituted and Higher Technical Instituted. Established in 2010 as part of Italy's post-secondary vocational education system, these institutions offer an alternative to university and play a key role in supplying labor-market-relevant skills, particularly in the medium-skilled segment. Their importance is expected to grow following the pilot reform of technical institutes introduced in the 2024/25 academic year.

The aim of asking these questions imagining to be 30 and 40 years old, is to recover the life-time income distribution expectations of students. This allow us to analyze not only how students' expected income influences educational choices, but also the role played by the variability of such income (see for instance Wiswall and Zafar, 2018).

In the first question, students are asked to provide their beliefs about the minimum and maximum monthly salary they could expect to earn by the age of 30 if they were working full time and had fully pursued educational choices reflecting each of the previous seven scenarios (eight for technical schools). At this point students are also further reminded that there is no right or wrong answer to these queries, and they only have to state their beliefs. The question reads as follow (the entries in italics symbolize the possible answers)[2]:

Imagine that you have enrolled and graduated in one of the courses in each of the categories in the table below, or that you are not graduated. Imagine in each scenario being 30 years old and working full-time. Based on the information you have, how much do you believe your monthly MINIMUM and MAXIMUM earnings could be in euros?

	MINIMUM monthly earnings	MAXIMUM monthly earnings
Civil engineering, Architecture, and Design	*Q30[1,1]*	*Q30[1,2]*
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	*Q30[2,1]*	*Q30[2,2]*
Economics, Business, and Law	*Q30[3,1]*	*Q30[3,2]*

[2] Questions were asked with a slightly different wording for technical school students to allow for the additional scenario.
For example, the question on minimum and maximum monthly earnings was phrased as follows: "Imagine that you have enrolled and graduated in one of the courses in each of the categories in the table below, or that you have completed a post-secondary training diploma lasting at least one year, or that you are not graduated. Imagine in each scenario being 30 years old and working full-time. Based on the information you have, how much do you believe your monthly MINIMUM and MAXIMUM earnings could be in euros?"

Medicine, Veterinary Medicine, and Health Professions	*Q30[4,1]*	*Q30[4,2]*
Psychology, Political Sciences, and Other Social Sciences	*Q30[5,1]*	*Q30[5,2]*
Literary Studies, Philosophy, and Humanities	*Q30[6,1]*	*Q30[6,2]*
Not graduated	*Q30[7,1]*	*Q30[7,2]*
Higher Technical Training Instituted and Higher Technical Instituted (only for technical schools)	*Q30[8,1]*	*Q30[8,2]*

Students are subsequently asked to assign probabilities to the realization, still at the age of 30, of three monthly income thresholds, varying according to the answers provided in the previous questions – and still considering all the seven different scenarios (eight for technical schools). Here an example reflecting one of the scenarios:

Imagine having obtained a university degree in the group of courses "Civil engineering, Architecture, and Design", to be 30 years old and work full-time. Based on the information you have, what is the percentage probability (from 0 to 100) that YOUR monthly earnings are greater than or equal to the values in euros in the table below?

	Probability that YOUR monthly earnings are greater than or equal to:
*0.75*Q30[1,1]+0,25*Q30[1,2] €*	
*0.5*Q30[1,1]+0,5*Q30[1,2] €*	
*0.25*Q30[1,1]+0,75*Q30[1,2] €*	

Since the previous questions require an understanding of the concept of probabilities, we provide students with a brief and simple explanation before they start answering. The provided example is also accessible at each question to make sure students remember and consider each query the same way.

Next, students are asked what are their average monthly income expectation in each scenario by the age of 40 and, for technical school students, also by age 30. While we would have liked to ask also for the age of 40 more information that could have helped us retrieving their income distribution expectations, we decided not to in favor of saving up time for other equally important questions.

Section III: Expectations about job characteristics.

The third part of the survey collects information on students' beliefs about the non-monetary returns of tertiary education. Again, we ask students to identify with all seven (eight for technical school students) educational scenarios, and then for each we ask questions regarding: the probability by the age of 30 to have a stable occupation; the probability to have remote working arrangements; the expected daily working hours; the probability that an easy work-life balance is achievable; the probability to work as an entrepreneur or a freelance. In all these questions students retain the possibility not to answer, and are reminded of the concept of probabilities through our example. For technical school students we added another battery of job-related characteristics including questions on: the expected age of financial autonomy, the probability of becoming an online content creator, the probability that their skills will become obsolete by the age of 50 and the probability of entering the informal labor market.

In the last batch of questions for this section we elicit students' beliefs about their willingness to study and work away from home, including an option for moving abroad. Again, the questions reflect the different educational scenarios[3].

Section IV: Preferences, skills and attitudes.

The last section of the questionnaire collects a battery of questions on students' preferences, attitudes, and abilities. We ask students what are their expectations regarding the probability of succeeding to graduate in each educational scenario, and their expected relative class ranking in terms of ability would they enroll in each of the different macro-categories of fields of study.

This section also includes two important questions about the probabilities students assign to their enrollment in each educational scenario, including the possibility not to enter university at all. We ask this question separately for their expectations regarding a bachelor degree and a master degree. We report here the exact framing of both:

What are the percentage probabilities (from 0 to 100) that you choose to enroll in one of the courses in each of the groups in the table below or that you do not enroll in university?

	Probability (0-100) of choosing post-secondary education path
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	

[3] The question on studying away from home does not include the "no tertiary education" scenario.

Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	
Not enrolled in university	
Higher Technical Training Instituted and Higher Technical Instituted (only for technical schools)	
Total	

Imagine being enrolled in one of the bachelor degree programs from each group in the table below. What is the probability (from 0 to 100) that, once you have obtained the bachelor degree, you choose to enroll in a MASTER degree program?

Bachelor Degree in:	Probability (0-100) to enroll in a master degree
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	

The last part of the questionnaire elicits students' preferences over different educational paths by means of a discrete choice-style exercise. We measure their implicit willingness-to-pay for studying different fields of study by showing pairs of wage scenarios dependent on their educational choices. This type of game is known in the literature as Coller and Williams (1999) choice-based game, which we propose to use to measure major-specific tastes. More specifically, respondents repeatedly face the choice between a major in the Humanities with a fixed monthly pay of €1,500, which we use as benchmark, and a major k (including the option "no college") with a monthly pay that ranges between €500 to €2,500 for lyceums and between €250 and €4000 for technical students.

As an example for lyceum students, the following question compares studying Literature, Philosophy, and other Human Sciences with Civil Engineer, Architecture, and Design:

We now ask you to choose an alternative between the pairs of alternatives below. Do you prefer to study "Literary Studies, Philosophy, and Humanities" and earn 1500 € per month or to study "Civil engineering, Architecture, and Design" and earn X € per month (with X varying in each row of the table below)?

Literary Studies, Philosophy, and Humanities	Civil engineering, Architecture, and Design
1.500 € ○	500 € ○
1.500 € ○	750 € ○
1.500 € ○	1.000 € ○
1.500 € ○	1.250 € ○
1.500 € ○	1.500 € ○
1.500 € ○	1.750 € ○
1.500 € ○	2.000 € ○
1.500 € ○	2.250 € ○
1.500 € ○	2.500 € ○

If a student, for instance, prefers studying Civil Engineer, Architecture, and Design and earn 500 euros per month rather than studying Literature, Philosophy, and other Human Sciences and earn 1,500 euros per month, we take it as a signal that the student has strong preferences for Civil Engineer, Architecture, and Design.

In the case of technical schools, we consider questions of the following type, referring to the eighth educational scenario:

We now ask you to choose between the pairs of alternatives below. Would you prefer to enroll in university and study "Literature, Philosophy, and other Humanities disciplines," earning €1,500 per month, or to enroll in a post-secondary training program lasting one year or more (such as courses offered by IFTS and ITS), earning €X per month (where X varies in each row of the table below)?

Literary Studies, Philosophy, and Humanities	*Post-secondary training program lasting one year or more (as IFTS and ITS)*

1.500 € ○	250 € ○
1.500 € ○	500 €○
1.500 € ○	750 € ○
1.500 € ○	1.000 € ○
1.500 € ○	1.250 € ○
1.500 € ○	1.500 € ○
1.500 € ○	1.750 € ○
1.500 € ○	2.000 € ○
1.500 € ○	2.250 € ○
1.500 € ○	2.500 € ○
1.500 € ○	3.000 € ○
1.500 € ○	4.000 € ○
1.500 € ○	5.000 € ○

One further interesting feature of the questionnaire is that it entails a randomization exercise between some specific sets of questions that will allow us to consider that students might reply differently when asked questions in different order. There is a vast literature that poses attention to survey designing, as both questions ordering and their framing have been found to bias how individuals respond (for example, Deaton, 2012; Suchman and Presser, 1981; Tourangeau et al., 2000). To consider some of these problems, we randomized the order of some questions and how answers to some others are displayed.

For technical schools' students we further added two last questions eliciting their time discount rate and their motivation for not wanting to proceed with post-secondary education.

At the end of the questionnaire, students are asked to provide the consent necessary to link their data to other datasets, such as the INVALSI tests.[4] While these additional data

[4] INVALSI (Italian Institute for the Evaluation of the Educational System) is the national agency that carries out each year national testing of students' competences in Italian, English and math. Standardized tests are compulsory and administered every year to the entire population of students in the second, fifth, eighth and tenth grades.

are not necessary for our project to run, being able to use them would surely enrich our study of a valuable information on how high school paths are shaped by students' past decisions and performance, helping us understanding how students also form future expectations.

Finally, lyceum students are also asked to give their consent to be contacted again for the second phase of the project, which is conducted only for lyceums.

2.2 Second interview: lyceum students one year later

A total of 525 lyceum students were further reached one year later. The follow up survey had to be shorter (20 minutes instead of 30) for budget purposes. The survey helps understanding what students ended up doing one year after we first interviewed them, with the aim of monitoring if their initial choices were pursued, and the reasons behind any possible deviation from them. The survey instrument is different according to the student educational/employment status and consists of four possible versions: 1) ex-lyceum students who ended up enrolling at university, 2) ex-lyceum students who entered the labor market and are employed, 3) ex-lyceum students who are unemployed, and 4) lyceum students who are repeating the last year of school.

In all versions we ask about economic expectations at age 30 and 40 for the chosen field of study, a way to check whether this information changed from the baseline survey.

For students enrolled at university we also ask a battery of questions aimed at understanding whether what (and where) they are studying reflect their wishes of the previous year – and if not, we investigate what the reasons are. We further ask about their university experience in terms of exams, studying environment, peers' network and lifestyle. We also added some questions on regret about their choices and if they would make different educational choices if they could go back in time.

For students who are working we also ask the reasons for choosing a different path from the one envisioned a year prior (if that is the case) and then proceed to ask about their jobs' characteristics (for instance: occupation, location, wage, type of contract, life-work balance) and also if they expect to move abroad to work.

3. Indicators

Using the information collected through our survey, we construct several indicators for the Amelia Platform, which can be useful for policymakers, families, and schools in gaining clearer insights into students' expectations when choosing post-secondary education. These indicators can also serve as valuable guidance for orientation programs.

We create a series of indicators on expected monetary and non-monetary returns to education, and on post-secondary educational choice (expected and realized). These indicators reveal what students think about their future regarding important job characteristics, and how these expectations vary in each of the seven post-secondary educational scenarios (eight for technical schools).

Each indicator can be explored alongside important dimensions such as the gender of students, the macro-area they live in, the type of high school attended, and combinations of these dimensions. There is a total of 36 combinations: 2 types of high school (lyceums vs technical schools) X 6 categories for geographical areas (Italy, North-East, North-West, Center, South, Islands) X 3 categories for gender (female and male, female, male)

The indicators we create are the following:[5]

- Intended post-secondary education
  (*variable pr_postsec_f in the online dataset*)
- Expected earnings by the age of 30
  (*variable mean_e30_f in the online dataset*)
- Deviation of expected earnings by the age of 30 from real data from the Labor Force Survey[6]
  (*variable gap_mean_e30_f in the online dataset*)
- Expected earnings by the age of 40
  (*variable mean_e40_f in the online dataset*)
- Deviation of expected earnings by the age of 40 from real data from the Labor Force Survey
  (*variable gap_mean_e40_f in the online dataset*)
- Probability of finding a stable occupation by the age of 30
  (*variable pr_findocc_f in the online dataset*)
- Probability of doing remote working (only for lyceums)
  (*variable pr_remwork_f in the online dataset*)
- Daily working hours

[5] In Appendix A we provide the exact wording of the questions asked in the surveys to construct such indicators.

[6] Labor Force Survey data refer to averages calculated by the authors for individuals between 30 and 35 years of age (for deviation of expected earnings by the age of 30) and 40 to 45 years of age (for deviation of expected earnings by the age of 40).

(*variable workhours_f in the online dataset*)

- Probability of achieving a good work-life balance
  (*variable pr_worklifebal in the online dataset*)
- Probability of self-employment
  (*variable pr_selfemp_f in the online dataset*)
- Probability of studying abroad (only for lyceums)
  (*variable pr_stud_abroad_f in the online dataset*)
- Probability of working abroad
  (*variable pr_work_abroad_f in the online dataset*)
- Age of financial autonomy (only for technical schools)
  (*variable age_financesuffic_f in the online dataset*)
- Probability of becoming an online content creator (only for technical schools)
  (*variable pr_contcreator_f in the online dataset*)
- Probability that skills become obsolete by the age of 50 (only for technical schools)
  (*variable pr_skillobsolete_f in the online dataset*)
- Probability of entering the informal labor market by the age of 30 (only for technical schools)
  (*variable pr_undeclared_f in the online dataset*)
- Deviation of post-secondary education scenario chosen from the one predicted at baseline (only for lyceum follow up)
  (*variable perc_match_f in the online dataset*)

In what follows, by way of example, we present a possible graphical representation of the indicators uploaded to the Amelia Platform. For each variable we show, separately for lyceums and technical schools, the averages at 1) country level, 2) gender level, and 3) macro-area level (we focus here on a comparison between the North-East and the South). Given the richness of data available in the Amelia Platform, similar graphs can be constructed by combining multiple dimensions; for instance, one can explore gender differences within each macro-area.

Intended post-secondary education

Expected earnings by the age of 30

Deviation of expected earnings by the age of 30 from real data from the Labor Force Survey

Probability of finding a stable occupation by the age of 30

Probability of achieving a good work-life balance

Deviation of post-secondary scenario chosen from the one predicted at baseline (only for lyceum follow up)

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Appendix

In this appendix we show the survey questions on which we based our indicators. Notice that for technical schools the wording was slightly different to include the eighth scenario of post-secondary training program.

Intended post-secondary education

What are the percentage probabilities (from 0 to 100) that you choose to enroll in one of the courses in each of the groups in the table below or that you do not enroll in university?

	Probability (0-100) of choosing post-secondary education path
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	
Not enrolled in university	
Total	

Expected earnings by the age of 30

To compute expected earnings, we ask two questions (question b. is asked for each scenario) to elicit the whole distribution of the earnings, we then use this data to fit a skew-normal distribution by respondent and major and compute its mean. The two questions are:

a. *Imagine that you have enrolled and graduated in one of the courses in each of the categories in the table below, or that you are not graduated. Imagine in each scenario being 30 years old and working full-time. Based on the information you have, how much do you believe your monthly MINIMUM and MAXIMUM earnings could be in euros?*

	MINIMUM monthly earnings	*MAXIMUM monthly earnings*
Civil engineering, Architecture, and Design	*Q30[1,1]*	*Q30[1,2]*

Engineering, ICT, Mathematics, Physics, and other Natural Sciences	*Q30[2,1]*	*Q30[2,2]*
Economics, Business, and Law	*Q30[3,1]*	*Q30[3,2]*
Medicine, Veterinary Medicine, and Health Professions	*Q30[4,1]*	*Q30[4,2]*
Psychology, Political Sciences, and Other Social Sciences	*Q30[5,1]*	*Q30[5,2]*
Literary Studies, Philosophy, and Humanities	*Q30[6,1]*	*Q30[6,2]*
Not graduated	*Q30[7,1]*	*Q30[7,2]*

b. *Imagine having obtained a university degree in the group of courses "…[example of major]…", to be 30 years old and work full-time. Based on the information you have, what is the percentage probability (from 0 to 100) that YOUR monthly earnings are greater than or equal to the values in euros in the table below?*

	Probability that YOUR monthly earnings are greater than or equal to:
*0.75*Q30[1,1]+0,25*Q30[1,2] €*	
*0.5*Q30[1,1]+0,5*Q30[1,2] €*	
*0.25*Q30[1,1]+0,75*Q30[1,2] €*	

Expected earnings by the age of 40

Imagine that you have enrolled and graduated in one of the courses in each of the categories in the table below, or that you are not graduated. Imagine in each scenario being 40 years old and working full-time. Based on the information you have, how much do you believe your monthly AVERAGE earnings could be in euros?

	AVERAGE monthly earnings
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	
Not graduated	

Probability of finding a stable occupation by the age of 30

Imagine enrolling and graduating in one of the degree programs from each group in the table below, or not graduating. Based on the information you have about job opportunities available in various scenarios, what do you think is the percentage probability (from 0 to 100) that you will be able to find stable employment, compatible with the skills and competencies acquired up to that point, by the age of 30?

	Probability (0-100) to find stable employment compatible with competences acquired
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	
Not graduated	

Probability of doing remote working (only for lyceums)

Imagine enrolling and graduating in one of the degree programs from each group in the table below, or not graduating. Based on the information you have about job opportunities available in various scenarios, what do you think is the percentage probability (from 0 to 100) that you will be given the opportunity to work remotely (smart working) at least a few days a week?

	Probability (0-100) to work remotly
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	

Not graduated	

Daily working hours

Imagine enrolling and graduating in one of the degree programs from each group in the table below, or not graduating. Based on the information you have about job opportunities available in various scenarios, what do you think is the average number of daily working hours?

	Number of daily working hours
Civil engineering, Architecture, and Design	*Dropdown menu 1-16*
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	*Dropdown menu 1-16*
Economics, Business, and Law	*Dropdown menu 1-16*
Medicine, Veterinary Medicine, and Health Professions	*Dropdown menu 1-16*
Psychology, Political Sciences, and Other Social Sciences	*Dropdown menu 1-16*
Literary Studies, Philosophy, and Humanities	*Dropdown menu 1-16*
Not graduated	*Dropdown menu 1-16*

Probability of achieving a good work-life balance

Imagine enrolling and graduating in one of the degree programs from each group in the table below, or not graduating. Based on the information you have about job opportunities available in various scenarios, what do you think is the percentage probability (from 0 to 100) that it is easy to balance your interests and personal life with your career?

	Probability (0-100) to balance personal life and interests with career
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	

Not graduated	

Probability of self-employment

Imagine enrolling and graduating in one of the degree programs from each group in the table below, or not graduating. Based on the information you have about job opportunities available in various scenarios, what do you think is the percentage probability (from 0 to 100) that in the future you may work as a freelancer or entrepreneur?

	Probability (0-100) to work as freelancer or entrepreneur
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	
Not graduated	

Probability of studying abroad (only for lyceums)

Imagine wanting to enroll in each of the groups of degree programs in the table below. What is the probability that you would choose to study near home (less than 150 km), far from home (more than 150 km) but in Italy, or abroad?

	Study within 150 km from home	*Study farther than 150 km from home*	*Study abroad*	*Total*
Civil engineering, Architecture, and Design				
Engineering, ICT, Mathematics, Physics, and other Natural Sciences				
Economics, Business, and Law				
Medicine, Veterinary Medicine, and Health Professions				

Psychology, Political Sciences, and Other Social Sciences				
Literary Studies, Philosophy, and Humanities				

Probability of working abroad

Imagine enrolling and graduating in each of the groups of degree programs in the table below, or not graduating. What is the probability that you would choose to settle for work near home (less than 150 km), far from home (more than 150 km) but in Italy, or abroad?

	Work within 150 km from home	*Work farther than 150 km from home*	*Work abroad*	*Total*
Civil engineering, Architecture, and Design				
Engineering, ICT, Mathematics, Physics, and other Natural Sciences				
Economics, Business, and Law				
Medicine, Veterinary Medicine, and Health Professions				
Psychology, Political Sciences, and Other Social Sciences				
Literary Studies, Philosophy, and Humanities				
Not graduated				

Age of financial autonomy (only for technical schools)

Imagine having graduated in one of the disciplines listed below, or having obtained a post-secondary education diploma lasting one year or more, or alternatively having obtained no qualification beyond a high school diploma. Based on the information you have about the job opportunities available in these different scenarios, at what age (between 18 and 65) do you think you will have achieved financial independence that allows you to be self-sufficient?

	Age of financial autonomy
Civil engineering, Architecture, and Design	*Dropdown menu 18-65*
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	*Dropdown menu 18-65*
Economics, Business, and Law	*Dropdown menu 18-65*
Medicine, Veterinary Medicine, and Health Professions	*Dropdown menu 18-65*

Psychology, Political Sciences, and Other Social Sciences	*Dropdown menu 18-65*
Literary Studies, Philosophy, and Humanities	*Dropdown menu 18-65*
Higher Technical Training Instituted and Higher Technical Instituted (only for technical schools)	*Dropdown menu 18-65*
Not graduated	*Dropdown menu 18-65*

Probability of becoming an online content creator (only for technical schools)

Imagine having graduated in one of the disciplines listed below, or having obtained a post-secondary education diploma lasting one year or more, or alternatively having obtained no qualification beyond a high school diploma. Based on the information you have about the job opportunities available in these different scenarios, what do you think is the percentage probability (from 0 to 100) that your main occupation will be that of an online content creator—for example, an Instagram or TikTok influencer, a blogger or video blogger (e.g., travel, fashion, or product reviews), a streamer (e.g., videogames), or a producer of content for paid platforms?

	Probability (0-100) to become a content creator
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	
Higher Technical Training Instituted and Higher Technical Instituted (only for technical schools)	
Not graduated	

Probability that skills become obsolete by the age of 50 (only for technical schools)

Imagine having graduated in one of the disciplines listed below, or having obtained a post-secondary education diploma lasting one year or more, or alternatively having obtained no qualification beyond a high school diploma. Based on the information you have about the job opportunities available in these different scenarios, what do you think is the percentage probability (from 0 to 100) that at the age of 50 you will find yourself struggling in the labor market due to the continuous evolution of technology and professions?

	Probability (0-100) of struggling to remain in the labor market
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	
Higher Technical Training Instituted and Higher Technical Instituted (only for technical schools)	
Not graduated	

Probability of entering the informal labor market by the age of 30 (only for technical schools)

Imagine having graduated in one of the disciplines listed below, or having obtained a post-secondary education diploma lasting one year or more, or alternatively having obtained no qualification beyond a high school diploma. Based on the information you have about the job opportunities available in these different scenarios, what do you think is the percentage probability (from 0 to 100) of having to work "off the books" at the age of 30?

	Probability (0-100) of working "off the books"
Civil engineering, Architecture, and Design	
Engineering, ICT, Mathematics, Physics, and other Natural Sciences	
Economics, Business, and Law	
Medicine, Veterinary Medicine, and Health Professions	
Psychology, Political Sciences, and Other Social Sciences	
Literary Studies, Philosophy, and Humanities	
Higher Technical Training Instituted and Higher Technical Instituted (only for technical schools)	
Not graduated	

Post-secondary education scenario chosen (only for lyceum follow up)

For follow up students who enrolled at university we ask:

a. *Which degree program are you enrolled in? (open ended question)*
b. *Which of the following groups in the table below does this degree program belong to?*
    - *Civil Engineering, Architecture, and Design*
    - *Engineering, ICT, Mathematics, Physics, and other Natural Sciences*
    - *Economics, Business, and Law*
    - *Medicine, Veterinary Medicine, and Health Professions*
    - *Psychology, Political Science, and other Social Sciences*
    - *Literature, Philosophy, and Humanities*
    - *I don't know / I prefer not to answer*