



# **EUROGRADUATE 2022**

2<sup>nd</sup> Phase of the European Pilot Survey of Higher Education Graduates

## **Country Report on Italy**

Interuniversity Consortium AlmaLaurea

January 2024

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Funded by the European Commission

**Notes:**

*Results in other reports or publications may diverge due to having used different data versions or other technological or methodological reasons. This report uses version of EUROGRADUATE dataset 1.0.0.*

*Statistics reported for Italy in this Report differ from those in AlmaLaurea reports may diverge due to having used different weight system, different definition of population and different time reference from graduation.*

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## Glossary and Abbreviations

<b>Core target group</b>	The part of the EUROGRADUATE target group that was surveyed in all countries, namely <b>Bachelor and Master level graduates</b> . Details and deviations are described in section 1.2.1.
<b>EG</b>	EUROGRADUATE
<b>Field of study</b>	Categorization of study programmes by thematic orientation. For concise visualization, this report displays 8 condensed fields (see Appendix).
<b>HE</b>	Higher education
<b>Highest degree</b>	always refers to the highest reported degree according to ISCED classification. Surveyed graduates could, and often do, have attended additional HE programmes besides the → <b>reference degree</b> . Countries that only surveyed essential information (see chapter 1.2.2) only surveyed follow-up, but not previous degrees.
<b>ISCED</b>	International Standard Classification of Education, a categorization scheme for educational degrees and thematic fields of education introduced by UNESCO. ISCED allows for international comparability and is the base for classifying degree levels, fields of study, and other educational attainments in this report and the EUROGRADUATE project.
<b>Reference degree</b>	Respondents in the EG 2022 survey were surveyed with focus on the degree they have attained as one of the → <b>target cohorts</b> , but could report on other degrees as well. “Reference degree” always refers to the graduation and degree on the basis of which a person was selected for the survey, as opposed to additional degrees.
<b>Target cohorts</b>	<b>2016/17 and 2020/21 higher education graduates</b> . EG 2022 collected data on two specific graduation cohorts (by academic year) to have clearly distinguishable groups for the comparison of the situation of graduates short- and mid-term after graduation.
<b>Target group</b>	Specific set of persons a study aims to provide information about. In the context of EUROGRADUATE, this entails all persons with a higher education degree obtained in the academic years 2016/17 or 2020/21 of the participating countries with the exception of PhD. Details and deviations are described in section 1.2.1.

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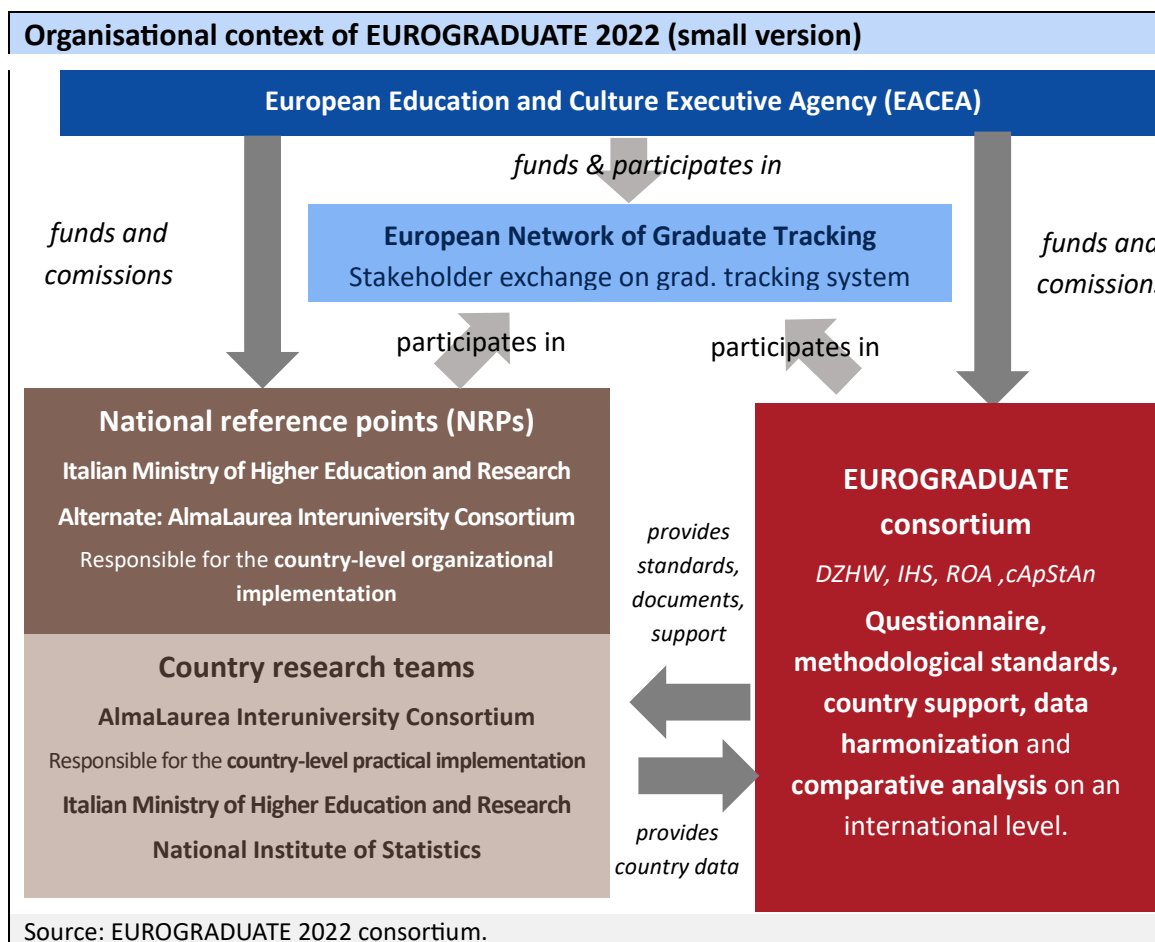
# 1 Introduction

## 1.1 Overview on the EUROGRADUATE 2022 survey

The EUROGRADUATE 2022 survey is the second pilot run for a European survey aiming to track higher education graduates. Its main goal is to provide data and analyses on the outcomes of attaining higher education in a way that allows for:

- both international comparison and research on a national level
- linking graduate background, education experience, employment, mobility, and social outcomes
- distinguishing different levels and fields of higher education
- comparison of short- and mid-term outcomes (1 and 5 years past graduation).

Following a feasibility study and a first pilot survey in 2018, EUROGRADUATE 2022 continues the path towards providing a cohesive information source on higher education graduates based on a structured, systematic data collection. The survey was rolled out in 17 pilot countries (following 8 pilot countries in Eurograduate 2018), applying standards and methods to create comparable and reliable data.





The implementation of EUROGRADUATE 2022 is commissioned and funded by the European Education and Culture Executive Agency (EACEA). National research teams are responsible for survey implementation, data cleaning and analysis on country level. The national data collections were guided by standards provided by the EUROGRADUATE 2022 consortium which laid out the questionnaire and methodological standards and supported the country teams with the implementation of those standards to ensure analytical potential and international comparability of the resulting data. The figure above shows structures and responsibilities within the project.

From the master questionnaire provided by the EUROGRADUATE consortium, countries were able to choose between surveying one module (essential questions), two modules (adding recommended questions) or three modules (adding questions on social outcomes, sustainability, and health). Of the 18 countries contributing to EUROGRADUATE 2022,

- 10 countries surveyed the complete set of questions: **Austria, Bulgaria, Cyprus, Czech Republic, Germany, Latvia, Malta, Portugal, Slovenia, Slovakia**
- 4 countries surveyed the two-module package: **Estonia, Croatia, Hungary and Norway**
- 3 countries surveyed essential information only: **Greece, Italy, Romania**
- 1 country (**Ireland**) did not provide microdata, but only aggregate indicators for its HE system

Countries with a pre-existing graduate survey had the option to provide the information from their existing survey results rather than implementing the master questionnaire; this option was used by Germany and Italy.

## 1.2 Methodology of the EUROGRADUATE survey

### 1.2.1 Whom this report is about - target group definition

The EUROGRADUATE core target group entails all graduates who achieved an ISCED level 6 (Bachelor's degree or equivalent) or level 7 (Master's degree or equivalent) degree in the academic years 2016/17 and 2020/21. The target group explicitly includes international students (graduates born, raised, and/or having attended secondary school outside the survey country) and mobile graduates who left the survey country after graduation. **The only persons excluded** to whom these conditions can apply were graduates of exclusively employer-run higher education institution, such as military academies or study programmes provided by public administration institutions exclusively to their civil servants.

**ISCED-8 (PhD-level) graduates are not included in the target group.** Graduates from ISCED-5 (Short-cycle)-programmes were eligible for inclusion into a country's target group if the programme they had graduated can be considered higher education. This criterion is necessary because vocational or secondary ISCED-5-degrees are offered in some survey countries as well. To establish a standard for all countries, **ISCED-5 graduates were to be included if their degree was offered by an institution that also offered programmes concluding with a degree at ISCED level 6 or higher.**

The **EG target group** entails all persons in the survey countries who earned a higher education degree, excluding PhD-level degrees, in any programme and institution in the academic years 2016/17 or/and 2020/21, excluding employer-run institutions.

### 1.2.2 What topics were surveyed? The questionnaire

The EUROGRADUATE consortium provided a master questionnaire<sup>1</sup> based on (a) the questionnaire of the first EUROGRADUATE pilot survey 2018, enhanced and modified based on the methodological insights from the pilot,<sup>2</sup> (b) recommendations of the European Network on Graduate Tracking, (c) current policy-relevant interests (such as the impact of Covid-19 and sustainability as a topic in study programmes) and (d) the comparability with other international surveys on education and employment. The questionnaire consisted of the following sections (in order):

- A. Education History: details on the reference HE programme (field and degree, institution, learning modes), HE access, other tertiary and non-tertiary education and training, international and work experience alongside studying.
- B. Work history: details on employment during survey and in 2018 (for 2016/17 graduates), labour market entry, job conditions and characteristics, satisfaction, education-employment match
- C. Competencies: respondents' level and required level in their job for 12 competencies (respondent-assessed)
- D. Mobility: place of residence during the reference programme, in 2018 (2016/17 graduates) and at the time of survey; reasons for mobility
- E. Personal and social background: age, sex, migration and citizenship, family background, partner- and parenthood details, general health
- F. Social outcomes: personal life, political engagement, and attitudes

The questionnaire was translated, adapted, and implemented into an online survey by each national research team for the respective country. The EUROGRADUATE consortium provided linguistic quality control to maximise cross-language comparability of the results. The national surveys were only accessible with access links individually distributed to target group respondents, preventing illegitimate responses by persons out of the target group or automated software.

### 1.2.3 How the data was collected – sample, representativity and field phase

Country research teams had two options for inviting eligible graduates to the survey: either to invite the whole target group (census), which was especially recommended to countries with a smaller yearly number of higher education graduates, or to draw a sample<sup>3</sup> from it. In either case, the resulting responses underwent a statistical weighting procedure to account for

<sup>1</sup> The full questionnaire files, as well as the questionnaires for the previous pilot survey, are publicly available at the [EUROGRADUATE website](#) [↗](#).

<sup>2</sup> Meng, C. et al. (2019): Eurograduate pilot study. Technical assessment of the pilot survey and feasibility of a full rollout. [Available online](#) [↗](#).

<sup>3</sup> In countries where a sample was drawn, the standard procedure was a disproportionally stratified random sample which was stratified at least by study fields, cohort, and degree level (additional stratification characteristics were applied by some countries). Deviating from this, the German data is based on a clustered and stratified random sample; the Italian data is based on a census of ~90% of the Italian HE institutions engaging in regular graduate tracking for 2016/17 and a random sample out of those institutions' graduates for 2020/21.



nonresponse and over- and underrepresentation of certain sub-groups of graduates in the survey. This weighting adjusted for graduation year, degree level, field of study, age, and gender; in some countries, additional weighting characteristics such as type and region of the higher education institution graduated from were also taken into account.

With regards to the sampling frame and contact information, two important details must be considered: Firstly, some countries' research teams were able to select and contact graduates based on a central register, while other countries needed to involve the separate higher education institutions to contact graduates – those generally opted for the census method (letting institutions invite all target group graduates), which was suggested to simplify coordination with the numerous institutions. Secondly, a person can hold two or more higher education degrees from the target years, especially when continuing with a Master programme after a Bachelor degree. Such cases were only identifiable when both/all such programmes were registered in the same contact database (e.g. same institution or same country with a central database). Due to the small number of persons concerned in countries that identified such cases (~1%) and the response effort, the possibility that a person replied more than once is assessed as negligible.

The core field phase took place between November 2022 and February 2023. Cyprus, Latvia, Malta, Slovenia and Germany conducted delayed and/or extended data collection ranging from the core field phase to July 2023. This needs to be considered when interpreting analyses of time-sensitive outcomes.

#### 1.2.4 How EUROGRADUATE was implemented in Italy

The Italian Ministry of Higher Education and Research (MUR) represents Italy in the European Network on Graduate Tracking and has expressed its interest to participate in the second phase of the EUROGRADUATE pilot survey. MUR has appointed AlmaLaurea as designated body for the run of the EUROGRADUATE 2022 survey in Italy. Therefore, AlmaLaurea has responded to the invitation to submit a proposal launched by the EACEA in the framework of the Erasmus+ Work Programme 2021 in order to support the data collection for the EUROGRADUATE 2022 pilot survey.

The TRACED Project, “Towards Regular Availability of Comparative European Data on graduates”, co-funded by the Erasmus+ program of the European Union and coordinated by AlmaLaurea with the support of MUR and the National Institute of Statistics (ISTAT), aims at **developing the European survey on the employment condition of graduates in Italy** by participating in the second phase of the European initiative EUROGRADUATE 2022 and at cooperating with the European stakeholders for increasing the availability of comparable data and research on the employment condition of graduates in the 17 countries involved.

Moreover, in the framework of the TRACED project, AlmaLaurea collaborated with MUR and ISTAT on two feasibility studies for the integration of databases on graduates coming from administrative and survey sources at national level.

## 2 The Italian higher education system and the EUROGRADUATE population

### 2.1 Population analysed in the “standard” AlmaLaurea survey

The 2022 survey involved a total of 474,000 first- and second-level graduates of 78 out of 80 Italian universities in AlmaLaurea Consortium at the start of the project.<sup>4</sup> The referring population of each survey was defined on the basis of the solar year. More in detail, the survey involved:

- 296,000 first- and second-level graduates in 2021, contacted one year after graduation.<sup>5</sup>
- 117,000 second-level graduates in 2017, contacted five years after graduation.
- 61,000 first-level graduates in 2017 who did not continue university studies (on the basis of 156,000 overall first-level graduates), contacted five years after graduation.

2017 graduates were already involved in the similar 2018 survey, completed one year after graduation. For this population, the employment status at one year from graduation has been inferred from the 2018 survey.

The survey did not include those graduates who have achieved more than an academic qualification. In particular, as for first- and second-level degree holders, only the second-level degree holders have been taken into consideration; whereas in case of students holding two degrees of the same level, only the first one (i.e., in terms of graduation date) was considered for the analysis.

### Survey methods and response rates

Graduates involved in the survey (excluding those of the first level at five years) were contacted through a two-step technique, CAWI (Computer-Assisted Web Interviewing) and CATI (Computer-Assisted Telephone Interviewing). The need to contain survey costs and, above all, the wide availability of email addresses suggested contacting graduates in a first phase via email, inviting them to fill out a questionnaire<sup>6</sup> on AlmaLaurea's website. In contrast, first-level graduates five years after graduation were involved only in a CAWI survey. This is mainly due to the particular selection made of the survey population. In fact, the five-year survey on first-level graduates focused only on graduates who did not continue their education by enrolling in a second-level degree programme (about 40% of the population).

The General Data Protection Regulation no. 2016/679 (also known as GDPR), in Italy operational since May 2018, has had an impact on the identification of graduates for interviews. In fact, only

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<sup>4</sup> The 80 Italian Universities joining the Consortium represent among 90% of the overall Italian population of graduates. In order to reach statistics representative of the overall population, a "re-proportioning" procedure is adopted.

<sup>5</sup> In agreement with Eurograduate coordinator, and only with regards to t+1 graduates, the analysis focuses on graduates who obtained their degree between September 2020 and July 2021 (in accordance with the definition of academic year adopted by Eurograduate). A sample of this population has been involved in an additional survey, conducted in fall 2022, in order to update their employment status and to obtain comparable data with respect to those gathered by the other countries involved in Eurograduate.

<sup>6</sup> For a better adaptation of the questionnaire to more modern devices like smartphones and tablets, a mobile version was also developed.

graduates who gave their consent to be contacted for statistical survey purposes were involved in the survey in accordance with GDPR.

An email address was available for more than 90% of graduates (reaching 97.3% of graduates in 2021). Graduates were contacted by e-mail at two different times: graduates of the January-June period were contacted between March and September 2022, those of the July-December period were contacted between August 2022 and January 2023. This strategy has been developed in order to carry out the interviews with essentially the same amount of time having passed since graduation.

The survey plan foresaw at least five reminders (and up to nine reminders for some cohorts), and the participation of the graduates is reported as follows: the overall response rate to the CAWI survey was 16.7% (percentage of the respondents to the e-mails sent) at one year from graduation (15.3% for the first-level and 18.7% for second-level graduates). Among the first- and second-level graduates contacted at five years from graduation, the participation was, respectively, 10.2% and 13.4%. However, some of the e-mails were not delivered, in particular due to the obsolescence of the e-mail addresses, as well as to problems related to full mailboxes. This phenomenon - in technical jargon called "bounces" - occurred rarely among all graduates (less than 1.0%).

In order to raise the participation rates to the suitable levels, the telephone survey (CATI) was combined to the web survey. As described for the CAWI survey, also for the CATI graduates were contacted at two different times: graduates of the January-June period were contacted, mostly, between March and September 2022, those of the July-December period were contacted mostly between September 2022 and January 2023.<sup>7</sup>

It is worth to note that there was no subsequent CATI stage to gather missing responses for the first-level graduates involved in the survey at five years from graduation.

At the end of the survey, the response rate on total graduates (CAWI + CATI) reached 68.2% among the first- and second-level graduates from 2021 at one year from graduation (202,225 graduates interviewed). Among the second-level graduates of 2017 involved in the five-year survey (CAWI + CATI), the response rate reached 55.0% (64,225 graduates interviewed). Finally, among the first-level graduates of 2017 involved in the five-year CAWI survey, the response rate reached 8.4% (5,177 graduates interviewed).

As noted, response rates have been affected by the proportion of graduates who were not contacted because they did not give their consent. Therefore, considering only graduates who could be contacted, the response rate on contactable graduates (CAWI+CATI) was 73.2% among 2021 first- and second-level graduates one year from graduation, 64.2% and 10.2% among 2017 second and first-level graduates after five years.

In interpreting the CATI response rate, it is worth to note that for the telephone survey, at one year after graduation, 7.4% of the failed contacts (rising to 9.1% among those at five years) are due to incorrect phone numbers or the impossibility of contacting the graduate (for example, because abroad or temporarily absent).

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<sup>7</sup> For greater uniformity and comparability of the data, for both surveys the telephone interviews were scheduled for 1<sup>st</sup> May and 1<sup>st</sup> October 2022 respectively. In other words, all the people contacted after these dates were asked to refer to their employment situation on 1<sup>st</sup> May (1<sup>st</sup> October) 2022.

A verification of possible distortions linked to the combination of different survey tools (CAWI and CATI) has shown that the quality of the data collected and the validity of the answers provided remain consistent regardless of the survey tool used. In fact, discrepancies between the responses made by those who participated in one type of survey compared to the other are very limited (in the order of a few percentage points).<sup>8</sup>

Specific analyses were carried out to assess the existence of structural differences between the graduates interviewed and those who did not participate in the survey, identifying the existence of some differences that however do not compromise the overall representative nature of the results (overall lower 6 percentage points).

### **Additional sample survey**

In agreement with EUROGRADUATE coordinator and in order to collect information as comparable as possible with the one gathered by the other countries involved in the EUROGRADUATE survey, concerning both the cohort and the interval of time after graduation, AlmaLaurea has conducted an additional CATI survey on a sample of graduates, whose purpose has been to update the employment status of graduates. The sample has been selected from the graduates of the period September 2020 – June 2021 and the survey has been run between 9<sup>th</sup> November 2022 and 9<sup>th</sup> December 2022. In order to align the conduction of the survey with the indications provided by the EUROGRADUATE coordinator, optimizing the surveying time, only a CATI survey has been realized. The sample is composed of 2,500 graduates (selected from a population of 173,000 graduates already interviewed in the framework of the previous t+1 AlmaLaurea surveys) and has been defined considering the following stratification variables: the field of study, the type of degree, and the geographical area of the university (about 25 interviews per stratum have been collected). The final number of interviews has been 2,681. The response rate, calculated dividing the number of respondents by the number of graduates contacted at least once, is equal to 33.4%. This data-base has been integrated with a proportion of July graduates, interviewed a t+1 year from graduation in the framework of the “standard” AlmaLaurea survey, in order to obtain a final sample composed by 3,340 interviews.

### **Data sources**

The Graduates’ Employment Status survey has collected information related to the employment status of graduates at one, and five years from graduation: current situation and first job experience, characteristics of the current job and of the employer, international labour mobility, satisfaction of the employee and skills acquired/skills needed matching, characteristics of job seeking and of inactive graduates etc.

The information collected through the abovementioned survey has been merged with other data coming from the following sources:

- Administrative data. This information came from the administrative archives of universities. The variables that have been taken into consideration were: gender, date of

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<sup>8</sup> The first research on this topic was conducted by Camillo F., Conti V., Ghiselli S., *Integration of different data collection techniques using the propensity score*. Presented at WAPOR (World Association for Public Opinion Research) 62nd Annual Conference 2009, Lausanne. AlmaLaurea Working Papers No. 4. Taken from [www2.almalaurea.it/universita/pubblicazioni/wp/pdf/wp004.pdf](http://www2.almalaurea.it/universita/pubblicazioni/wp/pdf/wp004.pdf).

birth, secondary school diploma, information related to the degree programme attended, year of enrolment, duration of studies and graduation date and mark.

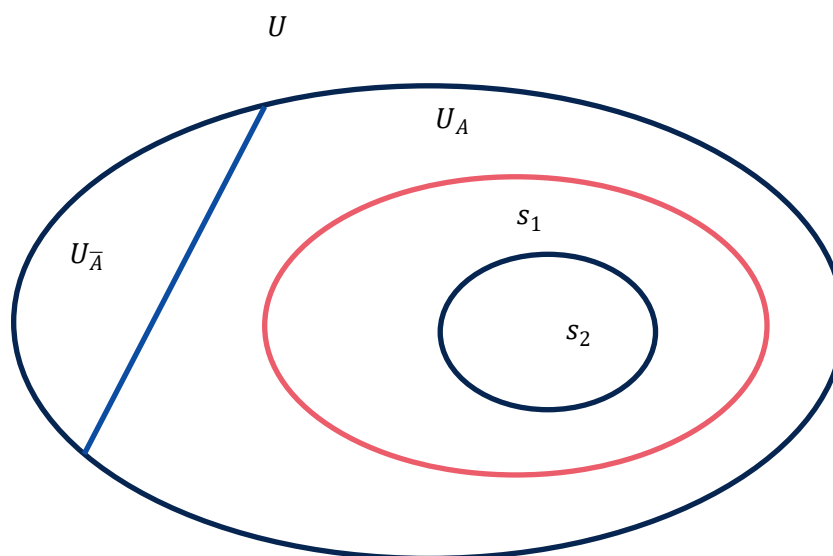
- Survey on Graduates' Profile. It includes the information provided by the students close to graduation before the end of their academic studies: socio-demographic information, information about study experiences abroad, work experiences made while studying at the university and traineeships made, availability to move abroad, self-certification containing information about the language and IT skills acquired, etc.

## 2.2 The sampling strategy for the pilot survey of the EG project in Italy

### Graduates interviewed at t+1

In order to conduct the additional sample survey, it has been taken into account that in Italy, auxiliary information is available at different levels and from different sources that can be used at the estimation stage. The situation can be depicted as in Figure A, where notation is as follows:

- $U$ : Italian population of interest – dimension  $N = 333,176$
- $U_A$ : Subpopulation of the AlmaLaurea Consortium – dimension  $N_A = 300,937$
- $U_{\bar{A}}$ : Subpopulation of Universities not covered by AlmaLaurea Consortium
- $s_1$ : AlmaLaurea sample (graduates interviewed) – dimension  $n_1 = 209,261$
- $s_2$ : Eurograduate sample – dimension  $n_2 = 3,340$



**Figure A.** Schematic of the population and the samples

**Figure A** represents a classical two-phase setting for making inference for the population  $U$ . In two-phase designs, usually a large first phase sample is drawn to obtain relatively inexpensive auxiliary information to be used to make more efficient inference from a much smaller second-phase sample where the variable of interest is surveyed. In our setting, the first phase sample  $s_1$  is made of all units surveyed by AlmaLaurea and the second-phase smaller sample  $s_2$  is the one surveyed for the Eurograduate project. The setting here is complicated by non-sampling errors, but auxiliary information is very rich and can be used to treat them.

The subpopulation of Universities that make up the AlmaLaurea consortium  $U_A$  covers 90% of the whole population  $U$ . The process that links the subsequent phases of the survey is sketched in Figure B together with the available information for each set of units. From  $U$  to  $U_A$ , we have a classical coverage error process, while from  $U_A$  to  $s_1$  we only have nonresponse as AlmaLaurea survey is a census. The nonresponse rate is approximately 30% at one year from graduation. Since AlmaLaurea uses a sequential CAWI-CATI strategy, there could be a mode effect, but studies prove that it is negligible, and we will ignore here it for the sake of simplicity.

The sample  $s_1$  is, therefore, self-selected. To adjust for coverage and nonresponse, AlmaLaurea uses a calibration approach in one step that exploits auxiliary information from Administrative Data available on the Italian Ministry of Higher Education and Research website.

Information available on  $s_1$  could be used directly for the Eurograduate survey if it were not misaligned in time. In Figure B we have denoted the information on the variables of interest from  $s_1$  by  $y^*$  borrowing from the measurement error literature, while the variables of interest  $y$  can be observed only on the subsample  $s_2$ . In fact, the population of interest for Eurograduate is made of all *graduates of the AA 2020/21 identified by those who graduated between sep-2020 and jul-2021*, as requested by the Eurograduate coordinators. The variables of interest  $y$  in the Eurograduate project are surveyed, loosely speaking, in the *Fall 2022*. Usually, AlmaLaurea surveys graduates one year after graduation setting up two tranches, in order to make sure all are interviewed approximately after one year: graduates between July and December are surveyed in the fall of the subsequent year (September-January, reference period 1<sup>st</sup> October), while those graduated between January and June are interviewed in the following spring (March-June, reference period 1<sup>st</sup> May). For this reason, information on  $s_1$  is misaligned in time.

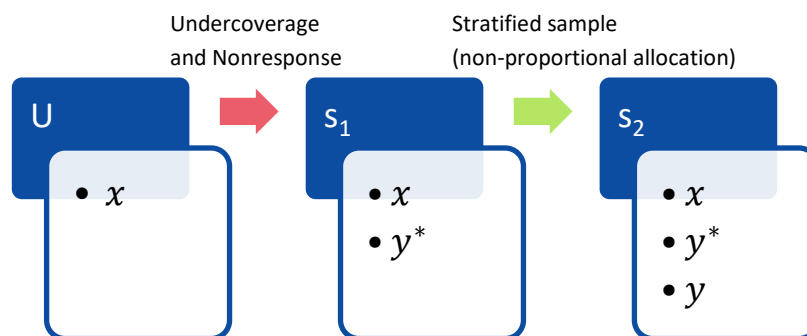
With respect to the population of interest of Eurograduate, AlmaLaurea has already the information  $y^*$  on the following subgroups:

- (i). Graduates between sep-2020 and dec-2020 interviewed in Fall 2021;
- (ii). Graduates between jan-2021 and jun-2021 interviewed in Spring 2022;
- (iii). Graduates in jul-2021 interviewed in Fall 2022 (among those who graduated between jul-2021 and dec-2021).

Units in (i), (ii) and (iii) make sample  $s_2$  of 3,340 units. Note that units in (iii) were not included in the additional survey because they were already aligned in time with the Eurograduate survey.

More in detail, the sampling strategy is based on a random sample  $s_2$ , from  $s_1$ , that exploits the auxiliary information via calibration to attain a comparable level of efficiency of the sample required by Eurograduate but using a smaller sample size.





**Figure B.** Schematic of the selection process and of the available information at each step for each subset of the population:  $x$  Admin Data;  $y^*$  variables of interest on employment status already surveyed by AlmaLaurea but measured with error because misaligned in time;  $y$ : variables of interest for Eurograduate on employment status. Red arrow denotes a non-random selection, while the green arrow denotes a random selection.

### Proposed calibration estimator

This section focuses on the estimation of the population total of a variable of interest  $y$  for the population  $U$ . Such population total can be written as  $t_y = \sum_{i \in U} y_i$ .

The first-phase sample  $s_1$ , of size  $n_1$  is obtained from  $U$  as a census of  $U_A$  with nonresponse. If, for the moment, we assume MCAR, the first phase sampling weight for unit  $i$  is given by  $a_{1i} = N/n_1$ . The second phase (Eurograduate) sample  $s_2$  has been selected from  $s_1$  by means of stratified sampling such that the (conditional) sampling weight for unit  $i$  is  $a_{2i} = n_{1h(i)}/n_{2h(i)}$ , where  $n_{1h(i)}$  ( $n_{2h(i)}$ ) is the number of units in stratum  $h$  to which unit  $i$  belongs in sample  $s_1$  ( $s_2$ ), so that  $1/a_{2i} = \Pr(i \in s_2 | s_1)$ . Then, the overall weight of unit  $i$ , given by  $a_i = a_{1i}a_{2i}$  can be called the design weight. The two-phase double expansion estimator, given by  $\hat{t}_{DEY} = \sum_{i \in s_2} a_i y_i = \sum_{i \in s_2} a_{1i} a_{2i} y_i$ , could be used to estimate  $t_y$  but makes no use of auxiliary information.

We use calibration (and raking in particular) to modify the design weights  $a_i$  subject to two separate sets of calibration equations (see case A3 in Estevao and Sarndal, 2002). We then produce a set of calibrated weights  $w_i = a_i g_i$  for each unit in  $s_2$  to be used to obtain the two-phase calibration estimator  $\hat{t}_y = \sum_{i \in s_2} w_i y_i = \sum_{i \in s_2} a_i g_i y_i$ . To this end we consider two auxiliary vectors denoted by  $x_1$  and  $x_2$  with dimension  $J_1$  and  $J_2$ , respectively. The values of  $x_1$  and  $x_2$  for unit  $i$  are denoted by  $x_{1i}$  and  $x_{2i}$ . Among all possible auxiliary variables available, we have conducted some model selection and chosen to use:

- for  $x_1$ : ISCED degree level by gender by field of study plus ISCED degree level by gender by geographical area of the University (North, Centre, South) plus ISCED degree level by gender by age so that  $J_1 = 84$ ;
- for  $x_2$ : ISCED degree level by age group plus field of study plus gender plus employment status plus income so that  $J_2 = 26$ .

In particular, we have the following auxiliary information:

- The vector of population totals (counts)  $t_{x_1} = \sum_U x_{1i}$  is known;
- The values  $x_{1i}$  and  $x_{2i}$  are known for all  $i \in s_1$ .

The final weights are obtained in two steps by minimizing a raking objective function in each of the two steps. In the first step, weights  $w_{1i} = a_{1i}g_{1i}$  are obtained by adjusting the first phase weights  $a_{1i}$  in order to satisfy the following calibration constraint:  $\sum_{s_1} w_{1i} x_{1i} = t_{x_1}$ . The adjustment factor  $g_{1i}$  does not depend on the second-phase sample  $s_2$ . The weights  $w_{1i}$  adjust for coverage and nonresponse and are then used to obtain  $\sum_{s_1} w_{1i} x_{2i}$  to be employed as the constraints in the second calibration step. Here, the second-phase weights  $a_{1i}g_{1i}a_{2i}$  are adjusted to obtain the final calibrated weights  $w_i = a_{1i}g_{1i}a_{2i}g_i$  that satisfy  $\sum_{s_2} w_i x_{2i} = \sum_{s_1} w_{1i} x_{2i}$ . The computation of weights has been conducted using the sampling package in R (Tillé and Matei, 2021).

### Graduates interviewed at t+5 and calibration estimator

At t+5 the situation can be described as follow:

- U: Italian population of interest – dimension  $N = 318,275$
- $U_A$ : Subpopulation of the AlmaLaurea Consortium – dimension  $N_A = 178,350^9$
- $s_1$ : AlmaLaurea sample (graduates interviewed) – dimension  $n_1 = 69,402$

Also in this case, the sample  $s_1$  is self-selected. To adjust for coverage and nonresponse, AlmaLaurea uses a calibration approach in one step that exploits auxiliary information from Administrative Data available on the Higher Education Ministry website.

Here, we use calibration (and raking in particular) to modify the basic constant weights  $a_i$ . We then produce a set of calibrated weights  $w_i = a_i g_i$  for each unit in  $s_1$  to be used to obtain the calibration estimator  $\hat{t}_y = \sum_{i \in s_1} w_i y_i = \sum_{i \in s_1} a_i g_i y_i$ . To this end we consider the auxiliary vector denoted by  $x_1$  with dimension  $J_1$ . The values of  $x_1$  for unit  $i$  are denoted by  $x_{1i}$ . Similarly to the t+1 case, we have chosen to use for  $x_1$  ISCED degree level by gender by field of study plus ISCED degree level by gender by geographical area of the University (North, Centre, South) plus ISCED degree level by gender by age so that  $J_1 = 84$ .

<sup>9</sup> Only graduates who did not pursue university studies were involved in the survey. Our calibration approach considered also graduates who did continue their studies for which information was available thanks to previous surveys or was obtained from administrative data sources.

### 3 The Education Experience

#### 3.1 Experience abroad as part of the study programme

Experiences abroad as part of the study programme<sup>10</sup> are more common among 2016/17 graduates, compared to 2020/21 graduates. In particular, in Italy it is 17% and 11% respectively, lower values than the EUROGRADUATE average (19% among 2016/17 graduates and 14% among 2020/21 graduates).

As in the EUROGRADUATE average, Master’s degree graduates in Italy, both among 2020/21 graduates (14%) and among 2016/17 graduates (18%), undertake more experiences abroad than bachelor’s degree graduates (respectively, 8% among 2020/21 graduates and 10% among 2016/17 graduates).

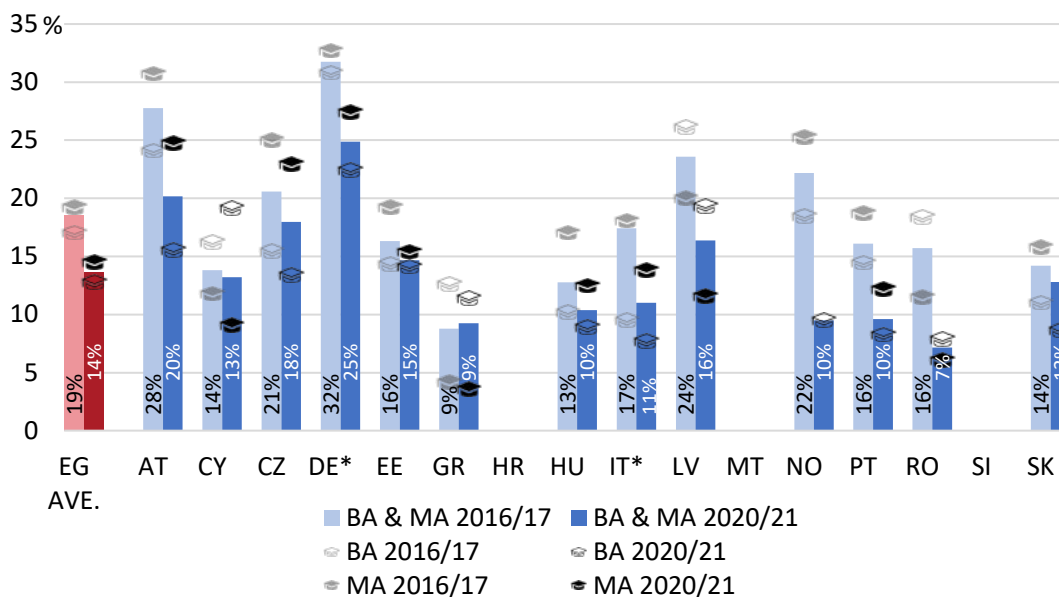
**Figure 1 – Proportion of graduates with any experience abroad – international comparison**

*Experience abroad: Graduates with at least one stay outside of the survey country during the reference study programme, displayed as shares of all respondents.*

**All graduates by:**

Cohort (twin bars); Degree level (icons); Survey country (X-Axis).

*Please note that results in other reports or publications may diverge due to having used different data versions or other technological or methodological reasons. This report uses version of EUROGRADUATE dataset 1.0.0.*



**Source:** Eurograduate Survey 2022; **Notes:** EG n= 149,359, ITALY n= 72,742; DE, IT: Limited comparability.

<sup>10</sup> To learn about the different types of study experiences abroad, consult the appendix.

In Italy, on the whole, among 2016/17 graduates, study experiences abroad as part of the study programme are more widespread among males (19%), compared to 16% of females, this trend is confirmed among Master’s degree graduates. On the contrary, among Bachelor’s degree graduates study experiences abroad are more widespread among females (8%) compared to 7% of males.

On the whole, among 2020/21 graduates, these experiences are more widespread among females (11%) compared to 10% of males; these percentages are confirmed both for Bachelor’s and for Master’s degree graduates.

About field of study, among 2016/17 graduates in Technology and Engineering and in Language, Arts and Humanities carry out more study experiences abroad (respectively, 23% and 22%). In this last field of study, unlike the others, study experiences abroad are more frequent among Bachelor’s degree graduates.

Even among 2020/21 graduates, the experiences abroad are more frequent through the graduates in Language, Arts and Humanities (19%), followed by Business, Administration, Law graduates (16%).

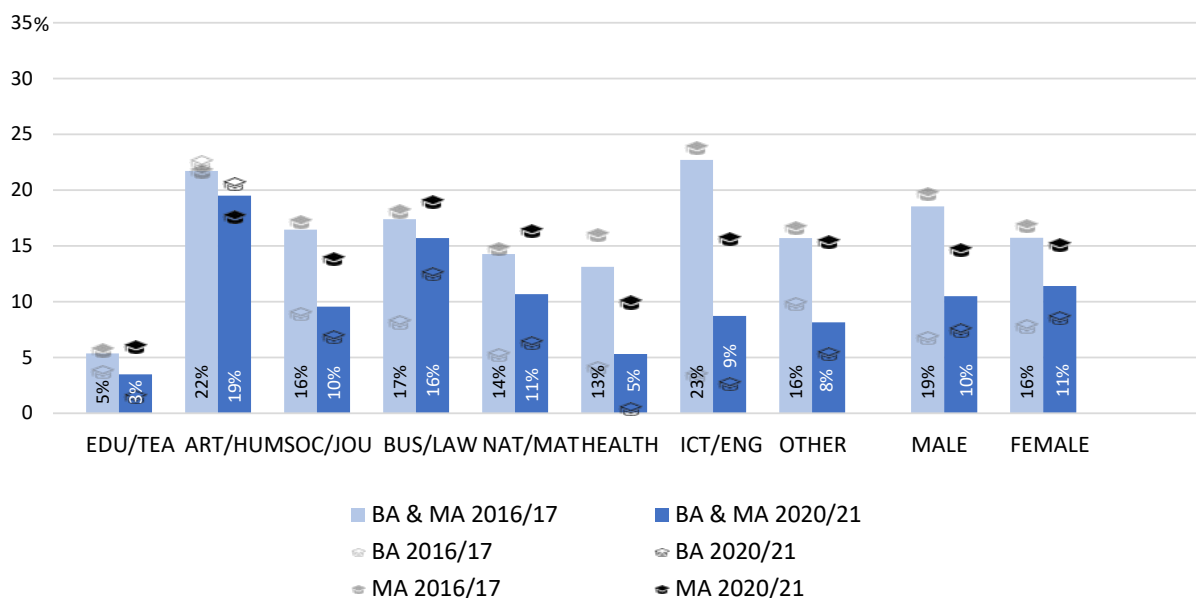
**Figure 2 – Proportion of graduates with any experience abroad for Italy**

*Experience abroad: Graduates with at least one stay outside of the survey country during the reference study programme, displayed as shares of all respondents.*

**All target group graduates of Italy by:**

Cohort (twin bars); Degree level (icons); Field of study and Gender (X-Axis).

*Please note that results in other reports or publications may diverge due to having used different data versions or other technological or methodological reasons. This report uses version of EUROGRADUATE dataset 1.0.0.*



*Field of study: Education and Teacher Training; Arts and Humanities; Social Sciences and Journalism; Business, Administration, Law; Natural Sciences (including Mathematics); Health; Technology and Engineering; Other (Generic programmes, Agriculture/forestry/fisheries/veterinary, Services).*

**Source:** Eurograduate Survey 2022; **Notes:** n= 69,402 cohort 2016/17 and 3,340 cohort 2020/21.

### 3.2 Labour market experience during studying

Labour market experience during studying involves 87% among 2020/21 graduates in Italy and 85% among 2016/17 graduates. These experiences are more widespread among Bachelor's degree graduates among 2016/17: in particular, 92% in Italy, compared to 84% registered in the EUROGRADUATE average. For Master's degree graduates, values in Italy are in line with the EUROGRADUATE average (84% for both).

Among 2020/21 graduates, the differences are reduced for Bachelor's degree: 86% for Italy and 84% for EUROGRADUATES average; for Master's degree graduates, 88% in Italy and 85% for EUROGRADUATES average.

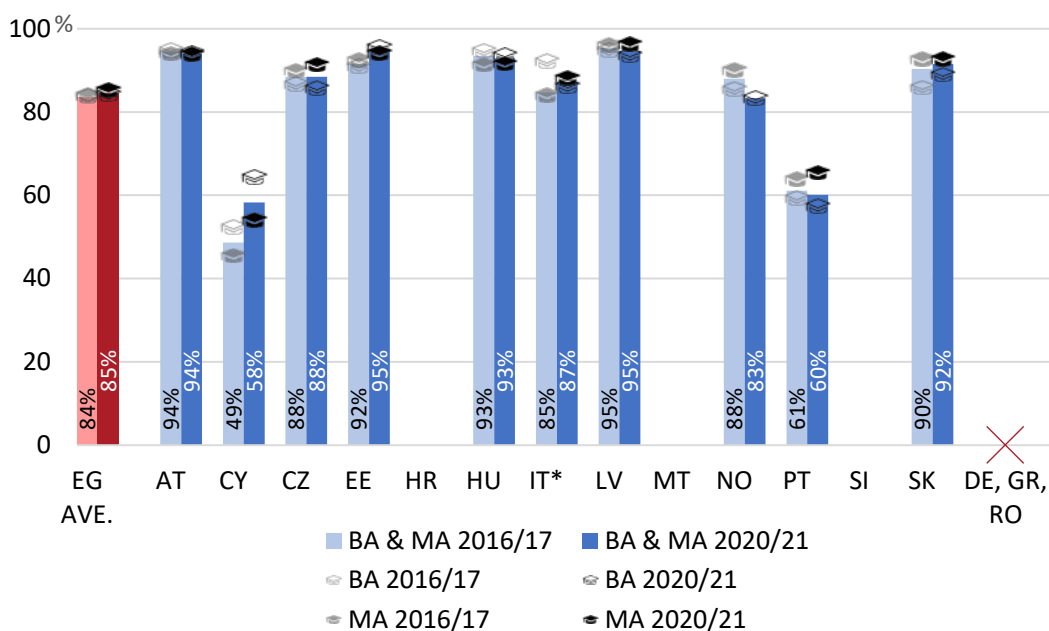
**Figure 3 – Proportion of graduates with any study-related labour market experience – international comparison**

*Study-related labour market experience: Paid labour that took place during and was related to the field of the reference programme and/or internships/work placements that were part of its curriculum.*

**All graduates of Italy by:**

Cohort (twin bars); Degree level (icons); Survey country (X-Axis).

*Please note that results in other reports or publications may diverge due to having used different data versions or other technological or methodological reasons. This report uses version of EUROGRADUATE dataset 1.0.0.*



**Source:** Eurograduate Survey 2022; **Notes:** EG n= 149,359, ITALY n= 72,742; IT: Limited comparability. DE, GR, RO: not surveyed.

In Italy, labour market experience during studying, on the whole, is more common among female both among 2016/17 and among 2020/21 graduates (88% and 87% respectively, compared to males 84% and 82%). The trend described is confirmed for both degree levels. About field of study, labour market experience during studying are more widespread among graduates of Education and Teachers Training field of study (98% among 2020/21 and among 2016/17 graduates). Generally, there are no differences between Bachelor’s degree and Master’s degree graduates, with the exception of three fields of study (Business, Administration, Law; Health; Technology and Engineering) where labour market experience during studying are more widespread between Bachelor’s degree graduates.

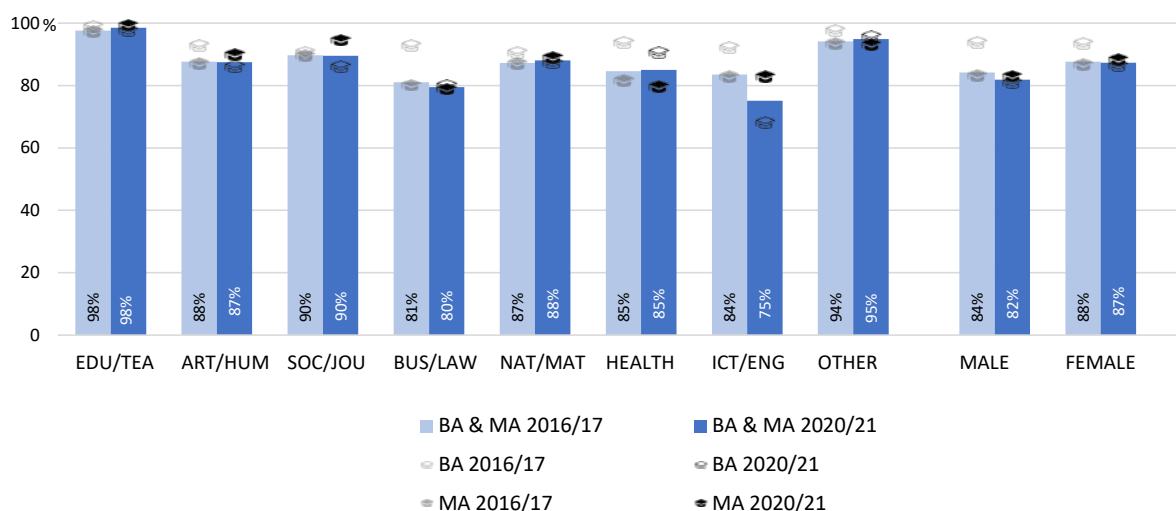
**Figure 4 – Proportion of graduates with any study-related labour market experience for Italy**

*Study-related labour market experience: Paid labour that took place during and was related to the field of the reference programme and/or internships/work placements that were part of its curriculum.*

**All graduates of Italy by:**

Cohort (twin bars); Degree level (icons); Field of study and Gender (X-Axis).

*Please note that results in other reports or publications may diverge due to having used different data versions or other technological or methodological reasons. This report uses version of EUROGRADUATE dataset 1.0.0.*



*Field of study: Education and Teacher Training; Arts and Humanities; Social Sciences and Journalism; Business, Administration, Law; Natural Sciences (including Mathematics); Health; Technology and Engineering; Other (Generic programmes, Agriculture/forestry/fisheries/veterinary, Services).*

**Source:** Eurograduate Survey 2022; **Notes:** n= 69,402 cohort 2016/17 and 3,340 cohort 2020/21.



## 4 Labour Market Participation and Labour Market Outcomes

### 4.1 Current employment status

Among Bachelor’s degree graduates, those employed in Italy are 39% at one year after graduation, which is significantly lower than the EUROGRADUATE average (67%); 57% is out of labour force and 4% unemployed (in the EUROGRADUATE average these percentages are respectively 29% and 4%). This result is due to the high percentage of Bachelor’s degree graduates that decide to pursuing their studies with a Master’s degree programme. At five years after graduation, Italy overcomes the EUROGRADUATE average: 90% of employed compared to 88%. The other modalities (unemployed and out of labour force) are residuals.

Among Master’s degree graduates, those employed in Italy at one year after graduation are 76% (compared to 87% of the EUROGRADUATE average); 14% is out of labour force and 10% unemployed (in the EUROGRADUATE average these percentages are respectively 9% and 4%). At five years after graduation Italy presents percentages in line with the EUROGRADUATE average ones.

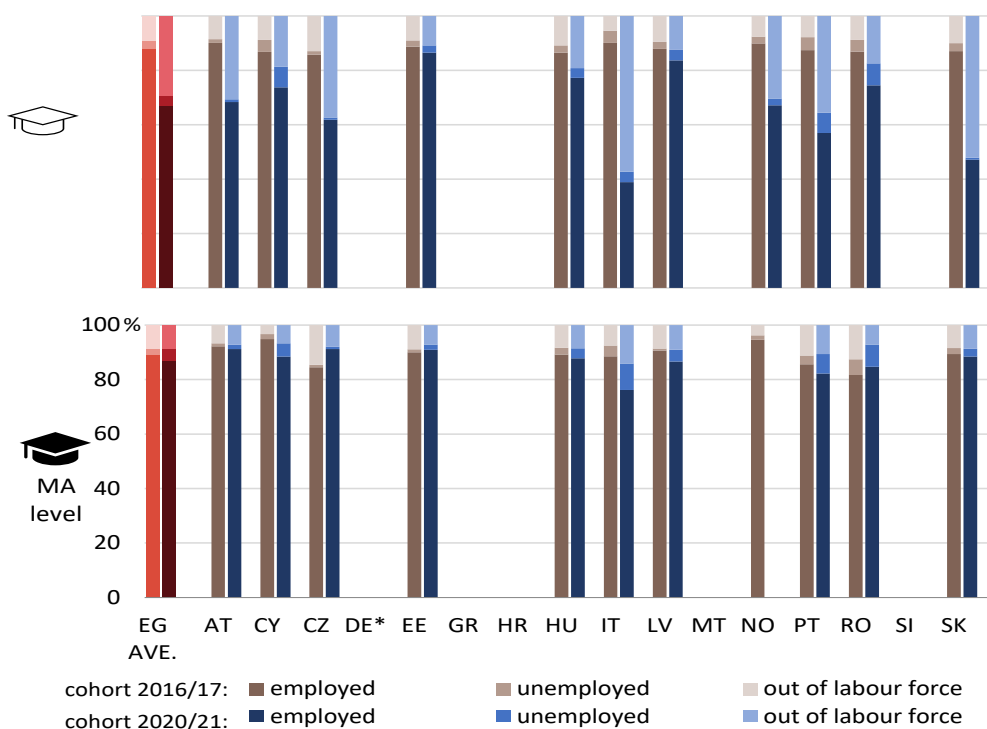
**Figure 5 – Current employment status – international comparison**

*Employment status: Employed if any (self-)employment was reported; out of labour force if no employment and another occupation (studying, parental leave, civic/military service, unpaid work, other) was reported.*

**All graduates by:**

Survey country (X-Axis); cohort (twin bars); degree level (top/bottom chart area)

*Please note that results in other reports or publications may diverge due to having used different data versions or other technological or methodological reasons. This report uses version of EUROGRADUATE dataset 1.0.0.*



**Source:** Eurograduate Survey 2022; Notes: EG n= 149,359, ITALY n= 72,742; DE: Limited comparability.

Among Italian graduates, at one year after graduation, there are no differences in Bachelor’s degree pathways between males and females, but it depends on the percentage of out of labour force population. On the other side, at five years after graduation, males are more employed than females, especially in Bachelor’s degree pathways (92% compared to 90% of females). In Master’s degree pathways, males are more employed than females at both one (79% compared to 77% of females) and five years after graduation (91% compared to 87% of females).

One year after graduation, there are high percentages of employed graduates in Health (65% and 83% for Bachelor’s and Master’s degree graduates, respectively) and Education and Teachers Training group (64% and 84% for Bachelor’s and Master’s degree graduates, respectively).

At five years after graduation, among Bachelor’s degree graduates, the fields of study with the highest number of employed are Technology and Engineering (97%) followed by Health (96%). These groups are also confirmed at among Master’s degree graduates (94% and 91%) to which Natural Sciences, including Mathematics is added (90%).

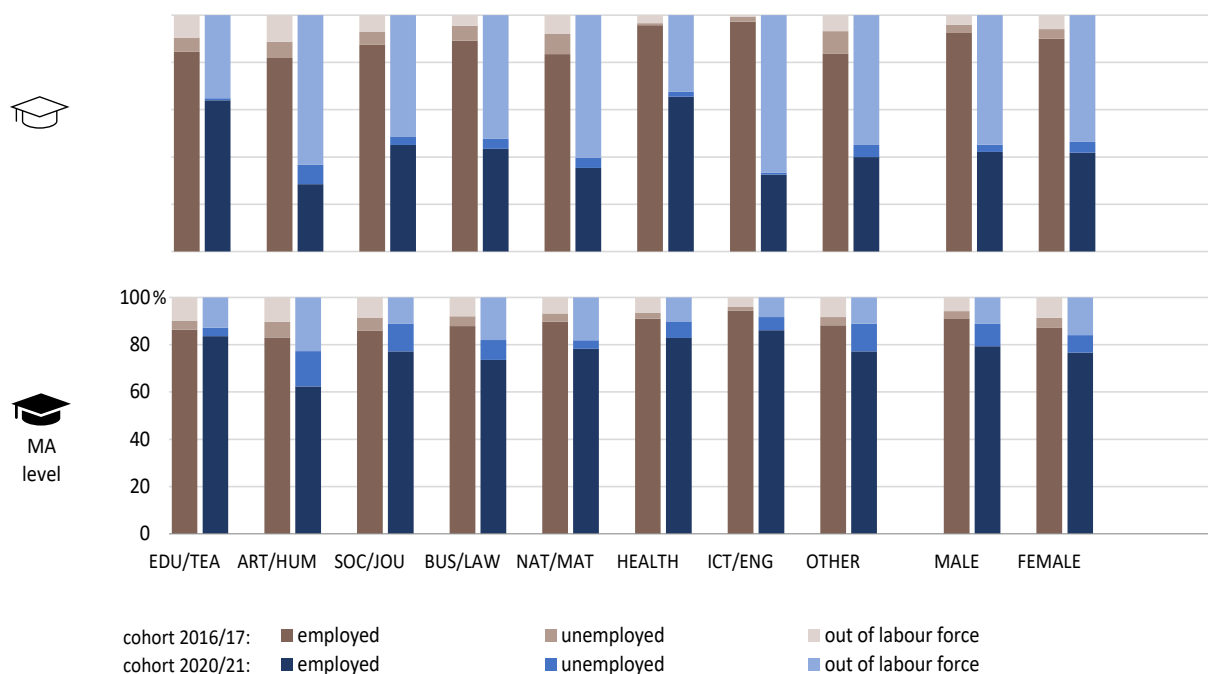
**Figure 6 – Current employment status for Italy**

*Employment status: Employed if any (self-employment was reported; out of labour force if no employment and another occupation (studying, parental leave, civic/military service, unpaid work, other) was reported.*

**All graduates of Italy by:**

Cohort (twin bars); Degree level (top/bottom chart area); Field of study and Gender (X-Axis).

*Please note that results in other reports or publications may diverge due to having used different data versions or other technological or methodological reasons. This report uses version of EUROGRADUATE dataset 1.0.0.*



*Field of study: Education and Teacher Training; Arts and Humanities; Social Sciences and Journalism; Business, Administration, Law; Natural Sciences (including Mathematics); Health; Technology and Engineering; Other (Generic programmes, Agriculture/forestry/fisheries/veterinary, Services).*

**Source:** Eurograduate Survey 2022; Notes: n= 69,402 cohort 2016/17 and 3,340 cohort 2020/21.

## 4.2 Job security

Among Bachelor’s degree graduates, at one year after graduation 38% of employed in Italy have an unlimited term contract (compared to 62% for EUROGRADUATE average); 48% have a fixed-term contract<sup>11</sup> (compared to 35% for EUROGRADUATE average); 14% have other contract type (3% for the EUROGRADUATE average). At five years after graduation, Italy's values are similar to those of EUROGRADUATE average: in Italy 73% have an unlimited term contract and 20% a fixed-term contract; in the EUROGRADUATE average the percentages are respectively 76% and 23%.

Among Master’s degree graduates, at one year after graduation 39% of employed in Italy have an unlimited term contract (65% for EUROGRADUATE average), 46% have a fixed-term contract (34% for EUROGRADUATE average), 14% have other contract type (2% for the EUROGRADUATE average). At five years after graduation, the unlimited term contract is signed by 60% of graduates in Italy (75% for EUROGRADUATE average), fixed-term contract by 30% (23% for EUROGRADUATE average).

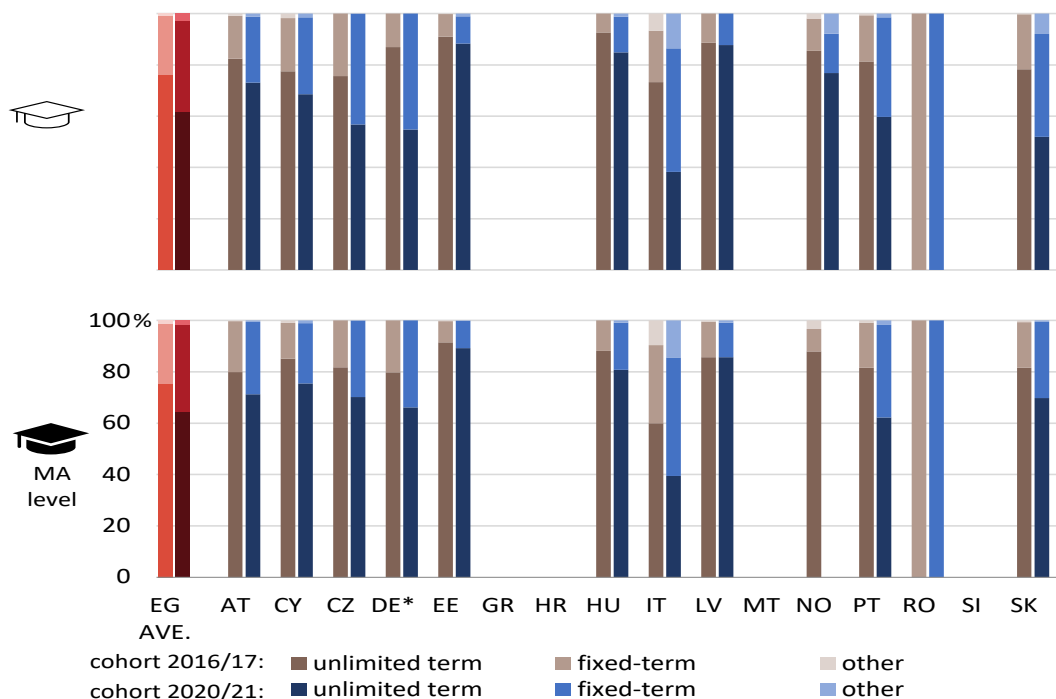
**Figure 7 - Job security of current job – international comparison**

*Job security: Proportion of graduates in employment in unlimited term contracts, as opposed to fixed-term and other contract types.*

**Graduates in employment (excluding self-employment) of Italy by:**

Survey country (X-Axis); cohort (twin bars); degree level (top/bottom chart area)

*Please note that results in other reports or publications may diverge due to having used different data versions or other technological or methodological reasons. This report uses version of EUROGRADUATE dataset 1.0.0.*



**Source:** Eurograduate Survey 2022; **Notes:** EG n= 149,359, ITALY n= 72,742; DE: Limited comparability.

<sup>11</sup> Training contracts are included.

The unlimited term contract is more frequently signed by males both at one and five years after graduation for Bachelor’s and Master’s degree graduates.

At one year after graduation, the unlimited term contract is more common in Health (54% for Bachelor’s degree graduates) and Technology and Engineering (48% for Master’s degree graduates). At five years after graduation, the unlimited term contract is more common among graduates in the Technology and Engineering (88% for Bachelor’s degree graduates and 81% for Master’s degree graduates), Natural Sciences, including Mathematics (82% for Bachelor’s degree graduates), and Business, Administration, Law (76% for Master’s degree graduates).

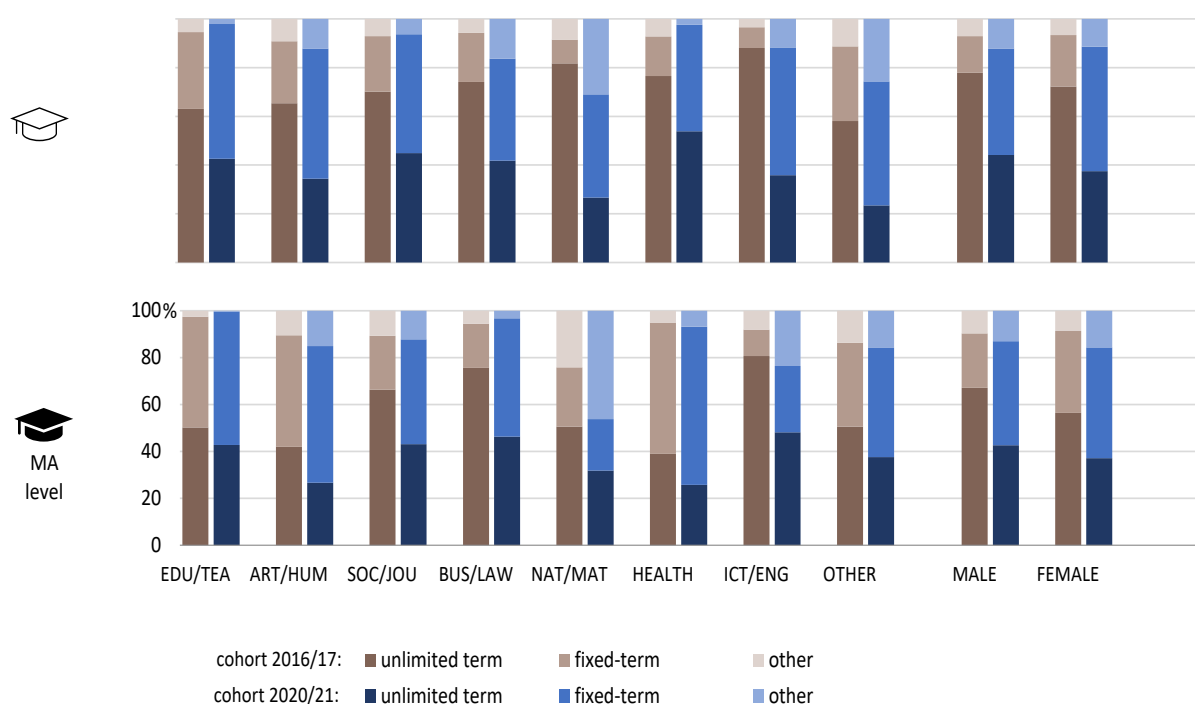
**Figure 8 - Job security for Italy**

*Job security: Proportion of graduates in employment in unlimited term contracts, as opposed to fixed-term and other contract types.*

**Graduates in employment (excluding self-employment) of Italy by:**

Cohort (twin bars); Degree level (top/bottom chart area); Field of study and Gender (X-Axis).

*Please note that results in other reports or publications may diverge due to having used different data versions or other technological or methodological reasons. This report uses version of EUROGRADUATE dataset 1.0.0.*



*Field of study: Education and Teacher Training; Arts and Humanities; Social Sciences and Journalism; Business, Administration, Law; Natural Sciences (including Mathematics); Health; Technology and Engineering; Other (Generic programmes, Agriculture/forestry/fisheries/veterinary, Services).*

**Source:** Eurograduate Survey 2022; **Notes:** n= 69,402 cohort 2016/17 and 3,340 cohort 2020/21.

## 5. Appendix

### Fields of study: Correspondence of dataset categories, report categories, and ISCED fields

Report categories (8-cat)	EG Field of study (survey categories)	Corresponds to ISCED fields
OTH - Other	0 Generic and unknown	00; UNK
EDU/TEA - Education and Teacher Training	1 Education Science	0110, 0111, 0119, 018
	2 Teacher Training	0112, 0113, 0114
ART/HUM - Arts, Humanities, Languages	3 Arts	021
	4 Humanities	020, 022, 028, 029
	5 Languages	023
SOC/JOU - Social Sciences, Journalism, Psychology	6 Social sciences, journalism and information	0310, 0311, 0312, 0314, 0319, 032, 038, 039
	7 Psychology	0313
BUS/LAW - Business, administration, law	8 Business and administration	040, 041, 048, 049
	9 Law	042
NAT/MAT - Natural sciences, mathematics, statistics	10 Natural sciences, mathematics and statistics	05
ICT/ENG - ICT and Engineering	11 ICT	06
	12 Engineering, manufacturing and construction	070, 071, 072, 073, 0, 0732, 078, 079
	13 Architecture and town planning	0731
OTH - Other	14 Agriculture, forestry, fisheries and veterinary	08
HEALTH - Health	15 Medicine, Dental Studies	0911, 0912
	16 Health	0910, 0913, 0914, 0915, 0917, 0919, 098, 099
	17 Pharmacy	0916
	18 Welfare	092
OTH - Other	19 Services	10

## Survey methodology and response details for EG countries

	valid responses 2016/17 cohort				valid responses 2020/21 cohort				Total valid responses	Invited to survey	net response rate	Sample/census	Contact data source	Field phase start	Field phase end
	ISCED level			Total	ISCED level			Total							
	5	6	7		5	6	7								
AT		2,455	3,008	5,463		3,450	3,520	6,970	12,433	22,000	56.5%	sample	central	10/2022	01/2023
BG		577	751	1,328		946	1,330	2,276	3,604	67,734	5.3%	census	decentral	01/2023	02/2023
CY	24	228	271	523	55	339	493	887	1,410	22,159	6.4%	census	decentral	01/2023	04/2023
CZ		1,624	1,867	3,491		1,980	1,846	3,826	7,317	80,745	9.1%	census	decentral	11/2023	03/2023
DE		453	446	899		2,942	2,824	5,766	6,765	50,586	13.4%	census	central	11/2022	05/2023
EE		907	607	1,514		1,133	876	2,009	3,523	18,725	18.8%	sample	central	11/2022	12/2022
GR		1,045	867	1,912		5,543	2,127	7,670	9,582	83,731	11.4%	census	decentral	11/2022	02/2023
HR		-	-	-		-	-	-	7,995	57,370	13.9%	census	--	12/2022	02/2023
HU		1,749	1,062	2,811		2,351	1,633	3,984	6,795	94,891	7.2%	census	central	11/2022	12/2022
IT		5,177	64,225	69,402		1,562	1,778	3,340	72,742	~112,600	~65%	census	central	11/2022	02/2023
LV		356	255	611		523	320	843	1,454	19,347	8.0%	sample	central	01/2023	05/2023
MT		-	-	-		-	-	-	-		5.0%	census	--	03/2023	05/2023
NO		1,457	1,745	3,202		1,662	-	1,662	4,864	24,343	20.0%	sample	central	12/2022	02/2022
PT	220	4,450	2,782	7,452	451	6,446	3,313	10,210	17,662	138,390	12.8%	census	decentral	11/2022	03/2023
RO		332	209	541		610	394	1,004	1,545	149,069	1.0%	census	central	11/2022	04/2023
SI	599	798	1,084	2,481	659	899	804	2,362	4,843		9.0%	census	central	05/2023	07/2023
SK		543	1,058	1,601		555	1,203	1,758	3,359	42,443	7.9%	Sample	central	11/2022	02/2023



## Proportion of BA-level graduates with different types of experience abroad

Type	study abroad		internship/work		language course		summer school, workshop		other stay abroad	
	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21
EG AVE.	10.2%	7.5%	5.8%	3.5%	1.1%	1.0%	3.1%	2.0%	0.5%	0.4%
AT	13.5%	8.3%	13.3%	6.6%	1.6%	1.0%	4.6%	2.9%	0.4%	0.3%
CY	9.0%	10.1%	8.2%	7.0%	1.5%	2.5%	3.0%	3.1%	0.0%	0.4%
CZ	8.9%	7.8%	3.8%	2.7%	1.9%	2.2%	4.1%	2.2%	0.7%	0.5%
EE	8.0%	8.4%	6.7%	5.1%	0.9%	1.5%	2.3%	2.9%	0.3%	0.0%
HR										
HU	6.7%	5.9%	3.1%	2.1%	0.4%	0.5%	1.4%	1.6%	0.0%	0.1%
IT*	7.5%	6.3%	1.8%	0.9%	0.0%	0.0%	0.0%	0.0%	2.4%	1.1%
LV	17.3%	14.1%	8.0%	5.2%	1.9%	1.2%	6.7%	3.2%	1.1%	0.9%
MT										
NO	14.3%	6.6%	3.2%	1.6%	1.5%	1.0%	2.8%	1.2%	0.7%	0.3%
PT	10.3%	6.6%	4.3%	1.5%	0.3%	0.4%	2.0%	0.8%	0.0%	0.1%
RO	9.7%	2.4%	7.8%	3.4%	0.4%	0.4%	4.9%	2.9%	0.0%	0.0%
SI										
SK	7.1%	6.5%	3.6%	2.3%	1.2%	0.2%	2.8%	0.8%	0.2%	0.2%


lowest (0.0%)



highest (17.3%)

## Proportion of MA-level graduates with different types of experience abroad

Type	study abroad		internship/work		language course		summer school, workshop		other stay abroad	
	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21
EG AVE.	12.6%	8.6%	7.3%	5.6%	1.2%	0.9%	4.4%	2.7%	0.6%	0.3%
AT	20.1%	14.7%	13.4%	11.3%	1.9%	1.6%	9.1%	6.6%	0.5%	0.3%
CY	7.0%	3.7%	4.8%	3.4%	1.6%	2.0%	2.0%	2.2%	0.0%	0.0%
CZ	16.5%	14.5%	9.4%	7.7%	2.4%	1.9%	5.7%	4.6%	0.7%	0.8%
EE	10.7%	8.4%	8.1%	6.2%	1.6%	1.5%	6.3%	4.1%	0.2%	0.3%
HR										
HU	9.4%	8.9%	7.4%	3.1%	0.7%	0.4%	4.0%	2.3%	0.0%	0.2%
IT*	15.6%	11.8%	3.9%	3.2%	0.0%	0.0%	0.0%	0.0%	3.1%	0.9%
LV	10.9%	6.0%	8.1%	5.4%	1.0%	0.7%	7.7%	1.7%	0.0%	0.0%
MT										
NO	20.3%		5.4%		1.1%		5.9%		1.5%	
PT	10.7%	7.8%	8.8%	4.8%	0.7%	0.6%	3.4%	1.2%	0.3%	0.3%
RO	7.0%	1.3%	4.1%	3.9%	1.1%	0.3%	1.6%	1.6%	0.0%	0.0%
SI										
SK	10.4%	8.9%	6.8%	6.6%	0.8%	0.6%	2.6%	2.5%	0.1%	0.0%

lowest (0.0%)  highest (20.3%)