

22nd Report Occupational Condition of Graduates

2020 Summary Report

Supported by



*Ministero dell'Università
e della Ricerca*

Summary of the 22nd Survey on the Occupational Condition of Graduates (AlmaLaurea Report 2020)

The 22nd AlmaLaurea Survey on Occupational Condition of Graduates involved 650,000 first and second-level graduates, two-year masters and single-cycle second-level graduates of the 76 Italian Universities that are members of the Consortium.¹ More specifically, 278,000 are first and second-level graduates in 2018 involved one year after graduation; 114,000 are second-level graduates in 2016 involved three years after graduation; 110,000 are second-level graduates in 2014 involved five years after graduation; 79,000 and 69,000 are first-level graduates in 2016 and 2014 respectively who did not continue their university education involved three and five years after graduation.

On an annual basis, the graduates involved in the survey account for about 90% of all graduates in Italian Universities, a population that ensures a more than significant picture for the entire Italian university system, especially if one focuses on the main characteristics of the observed populations.

The graduates involved in the survey (excluding those of the first-level at three and five years from graduation) have been interviewed through a two-step technique, CAWI (Computer-Assisted Web Interviewing) and CATI (Computer-Assisted Telephone Interviewing). The need to contain survey costs and the wide availability of email addresses (94.3% for 2018 graduates, 95.1% for 2016 graduates, 92.7% for 2014 graduates) suggested to involve graduates in a first phase via email, inviting them to fill out a questionnaire on the AlmaLaurea's website. At the end of the CAWI survey, all those who did not filled the online questionnaire have been phoned. The use of this two-step methodology allowed an overall response rate (CAWI + CATI) of 73.2% among first and second-level graduates in 2018 one year after graduation, 70.4% among the second-level graduates in 2016 three years out and 64.6% among those who graduated in 2014, five years after graduation. First-level graduates at three and five years after graduation were instead involved via CAWI survey, reaching a response rates of 21.4% after three years and 17.6% after five years, indeed a lower rate given the methodology used.

The present summary highlights the most relevant aspects of the employment performance of first and second-level graduates,² the latter being further divided into two-year masters and single-cycle second-level graduates. However, it should be noted that the most part of first-level graduates prolong their studies by enrolling themselves in a second-level degree. Indeed, in the 2018 cohort this choice was made by 64.2% of respondents.

For these reasons, in order to better monitor their performance in the labour markets, for first-level graduates it was deemed appropriate to limit the analysis to those who did not enrol in another course of study after graduation (34.9%).

¹ After some initial experiments, since 2015 AlmaLaurea carries out an annual survey on the Profile and Occupational condition of PhD and Academic Masters graduates. The results of the most recent surveys can be found, in Italian, at www.almaurea.it/universita/indagini.

² The observations reported here refer to the 2007-2018 cohorts and do not take into account the data gathered on first-level graduates in 2005 and 2006. Second-level graduates include two-year masters and single-cycle second-level graduates, as well as graduates from the pre-Bologna Process reform course of study in Primary Education Sciences. The employment outcomes of the latter are not taken into consideration due to their specificity and small number. The complete documentation is available at: www.almaurea.it/en/universita/indagini/laureati/occupazione.

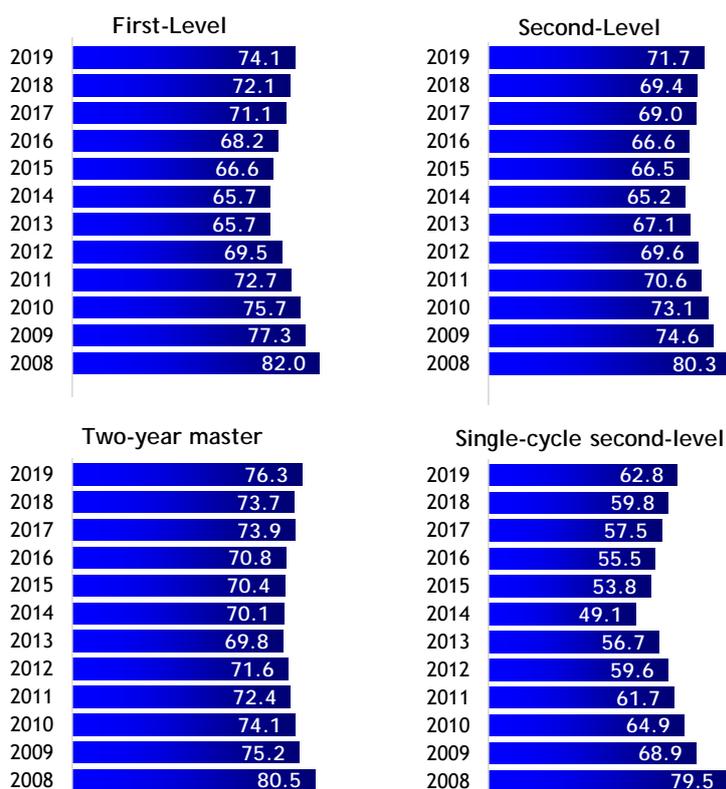
For each indicator considered, the figures show the historical series of first and second-level graduates from the year 2007 to the year 2018 (interviewed one year after graduation, i.e. from the year 2008 to the year 2019) and that of first and second-level graduates from the year 2007 to the year 2014 (interviewed five years after graduation, i.e. from the year 2012 to the year 2019).

1. Employment rate

In 2019, the employment rate one year after graduation, which also includes those engaged in paid training, was equal to 74.1% among first-level graduates and 71.7% among second-level graduates in 2018. Among the two-year masters the employment rate rose to 76.3% while for single-cycle second-level graduates it is 62.8% (Figure 1). Istat data show higher levels of employment among university graduates than those without a university degree. A comparison with previous surveys shows improvement in the employment rate which over the last four years has increased by 8.4 percentage points for first-level graduates and by 6.5 points for second-level graduates. These are positive signs that were also confirmed in the most recent year (the employment rate has increased by 2.0 points for first-level graduates and by 2.3 points for second-level graduates). However, these results are not yet sufficient to recover from the significant contraction in the employment rate observed between 2008 and 2014 (-16.3 percentage points for the former; -15.1 points for the latter). Moreover, the 2019 survey cannot account for the drop that occurred in the first few months of 2020.

Despite the inevitable problems experienced by those who entered the job market during the worst years of the global recession, even graduates three and five years after graduation show some signs of improvement in employment performance. In fact, for these graduates the first signs of a recovery in the job market have only become apparent in recent years. However, it should be noted that employment levels are decidedly high: more specifically, three years after graduation the employment rate reaches 87.8% among first-level graduates and 84.4% among second-level graduates (87.0% for two-year masters and 78.5% for single-cycle second-level graduates).

Figure 1 - 2007-2018 graduates interviewed one year after graduation: employment rate by degree type. Survey years 2008-2019 (percentage values)

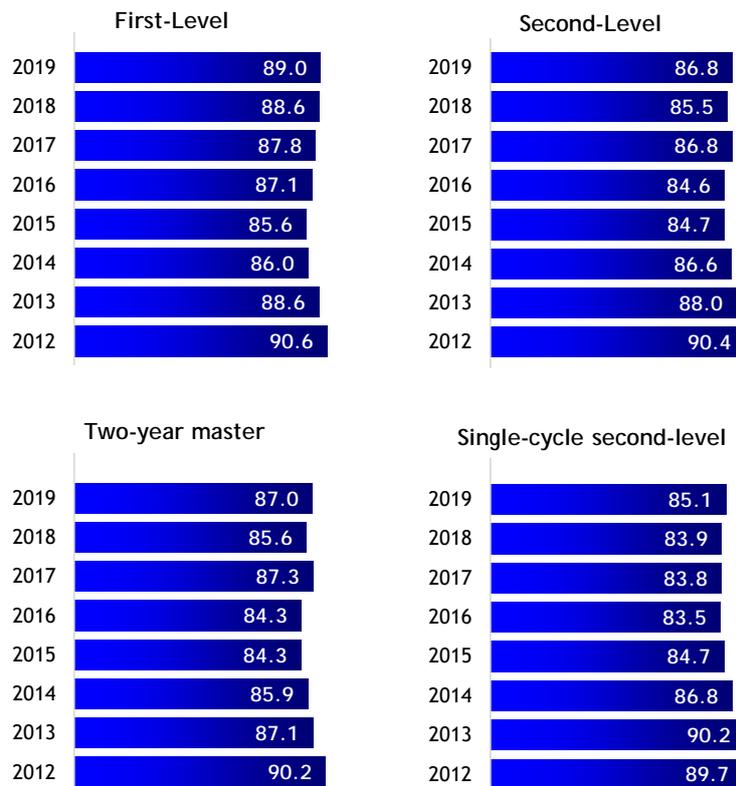


Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

Five years after graduation, the employment rate is 89.0% for first-level graduates and 86.8% for second-level graduates. Broken down by degree type, the employment rate is 87.0% for two-year masters, a value slightly higher than the 85.1% found among single-cycle second-level graduates (Figure 2). These rates have increased by 3.4 percentage points for first-level graduates and 2.1 points for second-level graduates compared to 2015. However, it is true that these positive signs come after years of significant contraction in the employment rate, which between 2012 and 2015 decreased by 5.0 percentage points for first-level graduates and by 5.7 points for second-level graduates. The comparison with last year's survey shows positive signs in the job market since for first-level graduates there was an increase in the employment rate of 0.4 percentage points, while for second-level graduates there was a 1.3 points increase.

Figure 2 - 2007-2014 graduates interviewed five years after graduation: employment rate by degree type. Survey years 2012-2019 (percentage values)



Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

1.1. Discrepancies in graduates employment levels

The employment outcomes described here show strong differentiations that in general involve all types of degree examined. These are differences that concern gender, geographic area of residence, but also, of course, the course of study completed.

In order to jointly analyse the multiple factors that generally affect the probability of being employed, a logistic regression model was used. The 2018 graduates were considered - first-level graduates who did not continue their education by enrolling in a course of study and second-level - involved one year after graduation.³

The analysis below takes into account several factors related to socio-demographic aspects (gender, parents' education, geographic area of residence), the university degree (degree type, field of study, geographic area of the university, age at graduation, degree completion type, exam mark, geographic mobility for study) and the experiences and skills gained during studies (internships/curricular internships, work or study abroad experiences, computer skills). Finally,

³ The model does not consider those who were already working upon graduation, those who live abroad, as well as graduates of the defence and security field of study, given their particular educational and work curriculum. Graduates of the pre-reform course of study in Primary Education Sciences were also excluded given the particular nature of their studies and their small number.

attention was paid to the aspirations and inclinations declared by the graduates on the eve of the end of their studies (intent to pursue further education, willingness to travel for business, job expectations after graduation, like career prospect, acquisition of professional skills, job security, relevance to their cultural interests, social utility of the job, flexibility of working hours).⁴

As can be seen in Table 1 (which shows only the significant variables) degrees in certain fields of study affect employment opportunities of recent graduates: all other things being equal, graduates in four fields of study (engineering; math, physics and natural sciences; chemistry and pharmacy; medicine - which also includes health professions) are more likely to find employment. Graduates of psychology, law and humanities are less so.

Moreover, it was found that, *ceteris paribus*, second-level degrees show greater employment opportunities one year after graduation: compared to first-level graduates, second-level graduates (who include both two-year masters and single-cycle second-level graduates) are 19.4% more likely to be employed. But this result must be interpreted with extreme caution, since very different populations are being compared in terms of instruction and professional and educational opportunities. In particular, among second-level graduates there is a relevant share of students who continue their education by enrolling in activities like internships or specialisation schools that, if paid, qualify them as being employed. These types of activities, preparatory to the start of professional self-employment, are obviously much less common among first-level graduates. In this regard, as one might expect, those who at the time of graduation declared that they did not intend to continue their studies are 42.3% more likely to be employed one year out than those who intend to continue their studies.

The traditional gender and geographic differences remain significant, showing, all else being equal, the better position of men (19.2% greater probability of being employed than women) and of those who reside or have studied in the North (as far as residence is concerned, +40.0% more probability of being employed than those who reside in the South; as far as the geographic area of studies is concerned, +63.7% more probability of being employed than those who have studied in the South).

Furthermore, those who reside in a province other than the place of study are 6.4% more likely to be employed after one year than those who study in the same province of residence.

Although the study implies a limited influence, graduates from families with at least one parent with a university degree show a lower probability of employment (-11.7%) one year after graduation compared to those with parents without university degrees. The underlying assumption is that the family environment allows graduates to delay their entry into the job market as they look for a better opportunity. This is part of a broader context where the family of origin influences both educational and occupational choices.

Exam mark, calculated taking into account the relative distribution for each university, faculty and degree class, have a positive effect on employment opportunities: the probability of being employed one year from graduation increases by 14.7% for those who earn marks above the median value. Concluding university studies on schedule facilitates better employment opportunities. Compared to students who graduate at least two years late, those who graduate on time are 16.3%

⁴ As shown in Table 1, almost all parameters have a significance of 1%. Factors that were considered but found not to be significant include aspects of the pre-university education (high school/secondary school diploma mark) as well as expectations related to the job sought as they relate to relations with co-workers in the workplace, independence and autonomy, engagement and participation in decision-making, earnings prospects, relevance to studies completed, prestige, amount of free time, place of work (i.e. location and related physical characteristics). The type of diploma, on the other hand, was excluded from the model given the modest value of the information.

more likely to be employed within one year of graduating. Those who graduate one year late are 5.2% more likely to be employed. Moreover, all else being equal, the age at graduation has a negative impact on the probability of being employed one year after graduation (-5.1% for each additional year). This is linked to the fact that those who enter the labour market at a younger age are more likely to find prospects and availability - not to mention contractual terms - that are more "attractive" to employers.

Work experience, as well as certain types of skills acquired during university studies, are factors that have a positive effect on employment opportunities one year after graduation. In fact, all else being equal, studying workers (i.e. those who have had continuous full-time work experience for at least half the duration of their studies) are twice as likely to be employed as those who graduate without any work experience. Working students (i.e. those who have had other types of work experience) are 45.7% more likely to be employed than those who have not had any work experience. All else being equal, those who have undergone a curricular internship have a 9.5% higher probability of being employed one year after graduation than those who have not done this type of activity. Similarly, those who have studies abroad that are recognised by their course of study⁵ are more likely to be employed than those who have never spent time abroad (12.9%).

Computer skills also have a positive effect on the odds of finding a job within the first year after graduation. Those who know at least five IT tools have a 21.4% higher probability of being hired than those who know at most two IT tools.

Some aspects of the work also have a positive effect in terms of employment and have been declared highly relevant by graduates on the eve of their graduation. All else being equal, those about to graduate and enter the job market who attributed relevant importance ("definitely yes") to the acquisition of professional skills and career prospect are more likely to be employed within one year of graduation (+12.5% and +9.7% respectively). These are areas where fast, direct entry into the labour market is important in order to gain experience and skills. The willingness to travel for business (regardless of frequency) is also rewarding in terms of employment (15.2% more likely than those who do not declare such openness). On the other hand, there is a lower probability of employment (between -6.4% and -6.1%) for those who consider it important for jobs to have aspects related to ideals, such as the social utility of the job and the relevance to their cultural interests, or other characteristics such as flexibility of working hours and job security. These are aspects that probably lead graduates to be more selective in their job search.

⁵ These are study experiences carried out under a European Union programme (e.g. Erasmus) and other programmes recognised by course of study, such as Overseas.

Table 1 - 2018 first and second-level graduates interviewed one year after graduation: logistical regression model for the assessment the probability of being employed. Survey year 2019

| | b | S.E. | Exp(b) |
|--|--------|-------|--------|
| Gender (female=0) | | | |
| male | 0.176 | 0.018 | 1.192 |
| At least one parent with a university degree (no=0) | | | |
| yes | -0.125 | 0.018 | 0.883 |
| Geographic area of residence (South=0) | | | |
| North | 0.337 | 0.032 | 1.400 |
| Centre | 0.232 | 0.032 | 1.262 |
| Degree type (First-Level=0) | | | |
| Second-Level | 0.177 | 0.022 | 1.194 |
| Field of study (Politics and social sciences=0) | | | |
| Agriculture and veterinary | 0.419 | 0.057 | 1.520 |
| Architecture | 0.369 | 0.044 | 1.446 |
| Chemistry and pharmacy | 1.184 | 0.052 | 3.266 |
| Economics and statistics | 0.721 | 0.036 | 2.056 |
| Physical education | 0.273 | 0.075 | 1.313 |
| Geology, biology and geography | 0.258 | 0.049 | 1.294 |
| Law | -0.324 | 0.037 | 0.723 |
| Engineering | 1.674 | 0.046 | 5.336 |
| Education | 0.765 | 0.048 | 2.149 |
| Humanities | -0.171 | 0.043 | 0.843 |
| Foreign languages | 0.185 | 0.044 | 1.203 |
| Medicine | 1.217 | 0.035 | 3.376 |
| Psychology | -0.740 | 0.051 | 0.477 |
| Math, physics and natural sciences | 1.634 | 0.073 | 5.122 |
| Geographic area of university (South=0) | | | |
| North | 0.493 | 0.033 | 1.637 |
| Centre | 0.269 | 0.032 | 1.308 |
| Age at graduation | -0.053 | 0.003 | 0.949 |
| Degree completion time (2 or more years late =0) | | | |
| on time | 0.151 | 0.025 | 1.163 |
| 1 year late* | 0.051 | 0.025 | 1.052 |
| Exam mark (below the median value = 0) | | | |
| mark above or equal to the median value | 0.137 | 0.018 | 1.147 |
| Comparison between province of residence and of study (same province=0) | | | |
| reside in a province other than the place of study | 0.062 | 0.018 | 1.064 |
| Internships organised by the course of study (no=0) | | | |
| yes | 0.091 | 0.018 | 1.095 |
| Work during studies (no work experience=0) | | | |
| studying workers | 0.713 | 0.058 | 2.041 |
| working students | 0.376 | 0.018 | 1.457 |
| Studied abroad during the course of study (no experience=0) | | | |
| study abroad recognised by the course of study | 0.121 | 0.025 | 1.129 |
| personal initiative* | 0.138 | 0.057 | 1.148 |
| Number of known IT tools (at most 2 IT tools=0) | | | |
| 3 or 4 IT tools | 0.119 | 0.025 | 1.127 |
| 5 or more IT tools | 0.194 | 0.022 | 1.214 |
| Plan to pursue postgraduate studies (yes=0) | | | |
| no | 0.353 | 0.018 | 1.423 |
| Willingness to travel for business (no=0) | | | |
| yes | 0.141 | 0.051 | 1.152 |
| Aspects important for job-seeking: career prospects (no=0) | | | |
| yes | 0.092 | 0.021 | 1.097 |
| Aspects important for job-seeking: acquisition of professional skills (no=0) | | | |
| yes | 0.117 | 0.025 | 1.125 |
| Aspects important for job-seeking: job security (no=0) | | | |
| yes | -0.064 | 0.021 | 0.938 |
| Aspects important for job-seeking: relevance to cultural interests (no=0) | | | |
| yes | -0.063 | 0.019 | 0.939 |
| Aspects important for job-seeking: social utility of the job (no=0) | | | |
| yes | -0.066 | 0.020 | 0.936 |
| Aspects important for job-seeking: flexibility of working hours (no=0) | | | |
| yes | -0.065 | 0.019 | 0.937 |
| Constant | 0.024 | 0.110 | 1.024 |

Note: Correct classification rate of 67.3%, N = 81,210; R2 Nagelkerke = 0.201.

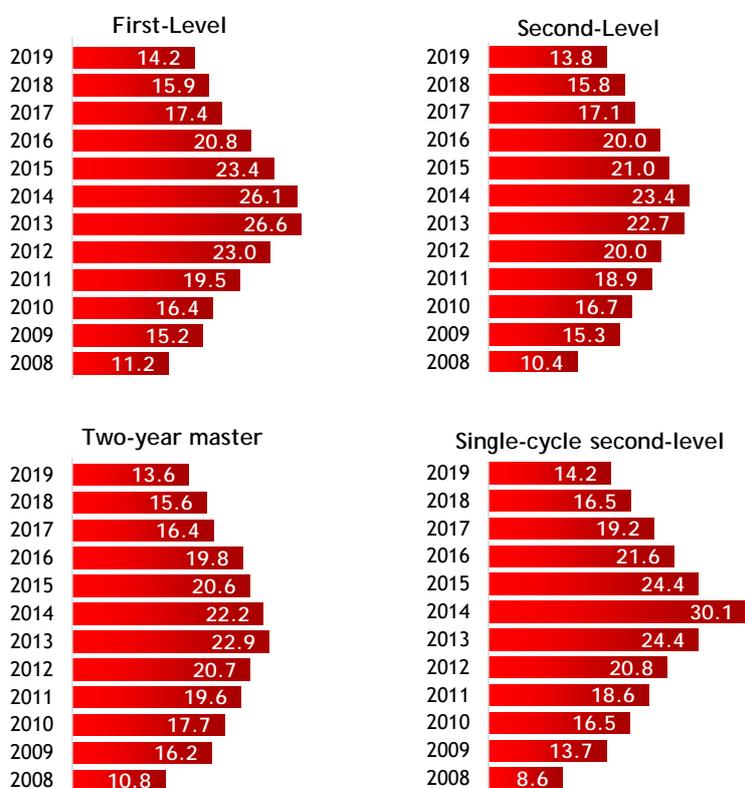
* Significance at 5% (p<0.05). Where not expressly indicated, parameters significant to 1% (p<0.01).

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

2. Unemployment Rate

The analysis of the unemployment rate confirms even more clearly the observations made to this point (Figure 3). One year after graduation the unemployment rate is 14.2% among first-level graduates and 13.8% among second-level graduates, with only a small difference between two-year masters (13.6%) and single-cycle second-level graduates (14.2%). Compared to the 2014 survey, the unemployment rate fell by 11.8 percentage points for first-level graduates and by 9.6 points for second-level graduates. This drop is also confirmed when limiting the analysis to the last year (-1.7 and -2.0 points, respectively). However, this improvement has not yet resulted in a return of unemployment levels to pre-recession levels. In fact, between 2008 and 2014 the unemployment rate increased by 14.9 points for first-level graduates and 13.0 points for second-level graduates.

Figure 3 - 2007-2018 graduates interviewed one year after graduation: unemployment rate by degree type. Survey years 2008-2019 (percentage values)



Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

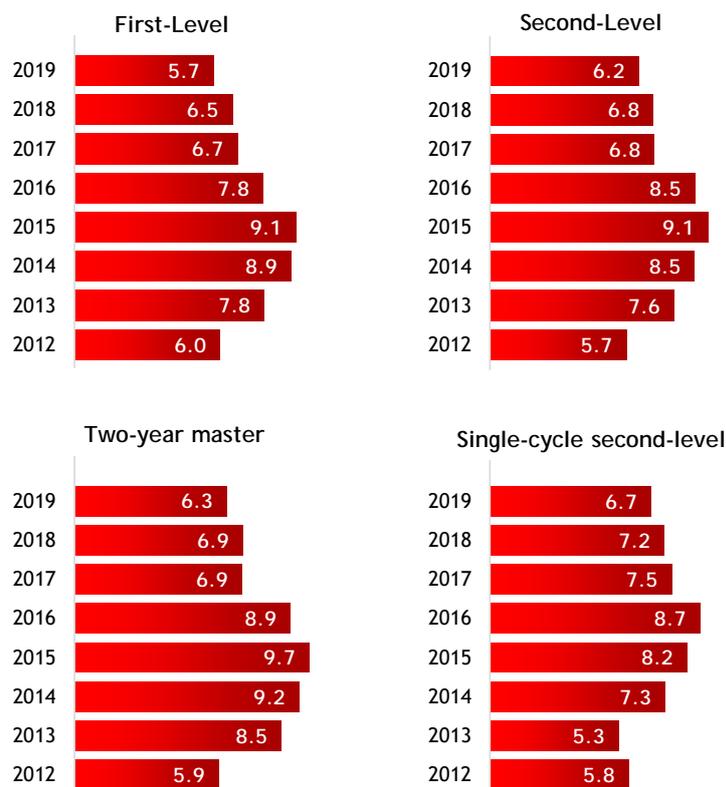
Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

Three years after graduation the unemployment rate reaches 7.2% among first-level graduates and 8.0% among second-level graduates (more precisely, 7.2% for the two-year masters and 10.2% for single-cycle second-level graduates).

Five years after graduation, unemployment levels are around 6% (Figure 4). In 2019 the unemployment rate was 5.7% among first-level graduates and 6.2% among second-level graduates. Broken down by degree type, the unemployment rate is 6.3% for two-year masters, which is slightly

lower than the 6.7% of the single-cycle second-level graduates.⁶ Compared to the 2015 survey, the unemployment rate fell by 3.4 percentage points for first-level graduates and by 2.9 points for second-level graduates. However, this contraction comes after a period of progressive increases in the unemployment rate which, between 2012 and 2015, increased by 3.1 percentage points for first-level graduates and by 3.4 points for second-level graduates. Compared to previous years, first-level graduates achieved minimum levels of unemployment for the first time in 2019. For second-level graduates, while the drop in unemployment was not yet able to bridge the difference, the unemployment levels observed in 2019 were close to those of 2012.

Figure 4 - 2007-2014 graduates interviewed five years after graduation: unemployment rate by degree type. Survey years 2012-2019 (percentage values)



Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

⁶ The values included here are higher than the average unemployment rate of the group of second-level graduates, which is influenced by the normal levels found among pre-reform graduates in Primary Education Sciences, not described in this Summary.

3. Types of employment

The analysis of the characteristics of the work carried out and in particular of the type of employment provides a picture that is closely linked to the regulatory actions⁷ that have taken place in recent years. As is well known, these actions have had different effects on the public and private sectors.

One year after graduation, 13.8% of employed first-level graduates and 11.6% of employed second-level graduates are self-employed:⁸ this value stands at 8.0% for two-year masters, while due to the very nature of these courses of study - oriented towards a career as self-employed professionals - it rises to 22.5% for single-cycle second-level graduates. 25.6% of first-level graduates and 25.8% of second-level graduates are employed with permanent contracts. Again in this case, the differences between two-year masters (29.5%) and single-cycle second-level graduates (14.5%) are relevant (Figure 5). Graduates hired with non-standard contracts (in particular with fixed-term contracts) represent 38.7% of first-level graduates and 33.5% of second-level graduates, with some differences by degree type: 31.7% for two-year masters and 38.6% for single-cycle second-level graduates. On the other hand, 11.9% of first-level graduates and 15.9% of second-level graduates (more specifically, 18.4% of two-year masters and 8.7% of single-cycle second-level graduates) are employed with a training contract. The other forms of self-employment (mainly occasional professional services contracts) account for 4.1% of first-level graduates and 5.4% of second-level graduates (respectively 4.7% and 7.6% for two-year masters and single-cycle second-level graduates), while semi-subordinate work (collaboration/consultancy) concerns 2.4% and 2.8% (respectively 2.9% and 2.5% for two-year masters and single-cycle second-level graduates). Finally, irregular work accounts for 3.0% of first-level employed graduates and 3.6% of second-level employed graduates (3.3% for two-year masters and 4.4% for single-cycle second-level graduates).

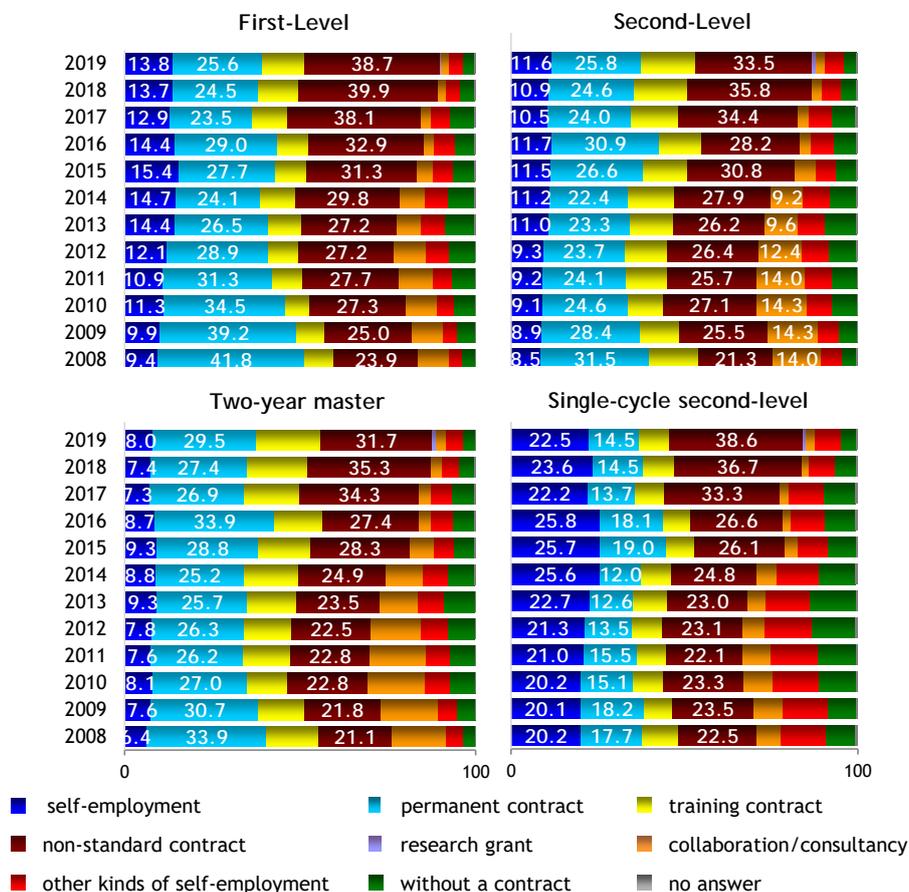
A comparison with the surveys of previous years shows trends that are not always linear and that are difficult to fully explain given the multiplicity of factors that affect the results. These factors include regulatory actions taken in recent years, the fact that the employed include graduates hired in different periods of time and the recession which had a varying impact on the labour markets. Compared to the 2008 survey there was a marked increase in non-standard employment, up 14.8 percentage points among first-level graduates and 12.2 points among second-level graduates, despite a decrease in the previous survey (-1.2 and -2.3 percentage points, respectively). This is also in line with the latest trends in the overall job market in Italy. In contrast, compared to 2008 there was a decrease in permanent employment of 16.2 percentage points among first-level graduates and 5.7 points among second-level graduates. However, as already seen in 2018, even last year there was a slight increase in the number of permanent contracts for both populations (+1.1% and +1.2% respectively). Semi-subordinate work also decreased by 6.6 and 11.2 points compared to 2008. This confirms a substantial stability compared to the previous year. Other changes are more limited. In particular, compared to 2008 there was an increase in self-employment of 4.4 percentage points among first-level graduates and 3.1 points among second-level graduates. For unregulated work, the comparison between 2008 and 2019 shows a slight decrease for both populations (-0.7 and -0.5

⁷ In addition to the Jobs Act (Italian law 183/2014), it is worth recalling the Stability laws and legislative decrees attached to them, as well as the Dignity Decree (Italian law no 96/2018).

⁸ The characteristics of the work carried relate to graduates who carry out a paid activity, with the exception of educational activities.

percentage points respectively). This is the result of a considerable increase in off-the-book jobs at the height of the crisis, which fortunately has since subsided.

Figure 5- 2007-2018 graduates employed one year after graduation: type of work by degree type. Survey years 2008-2019 (percentage values)



Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

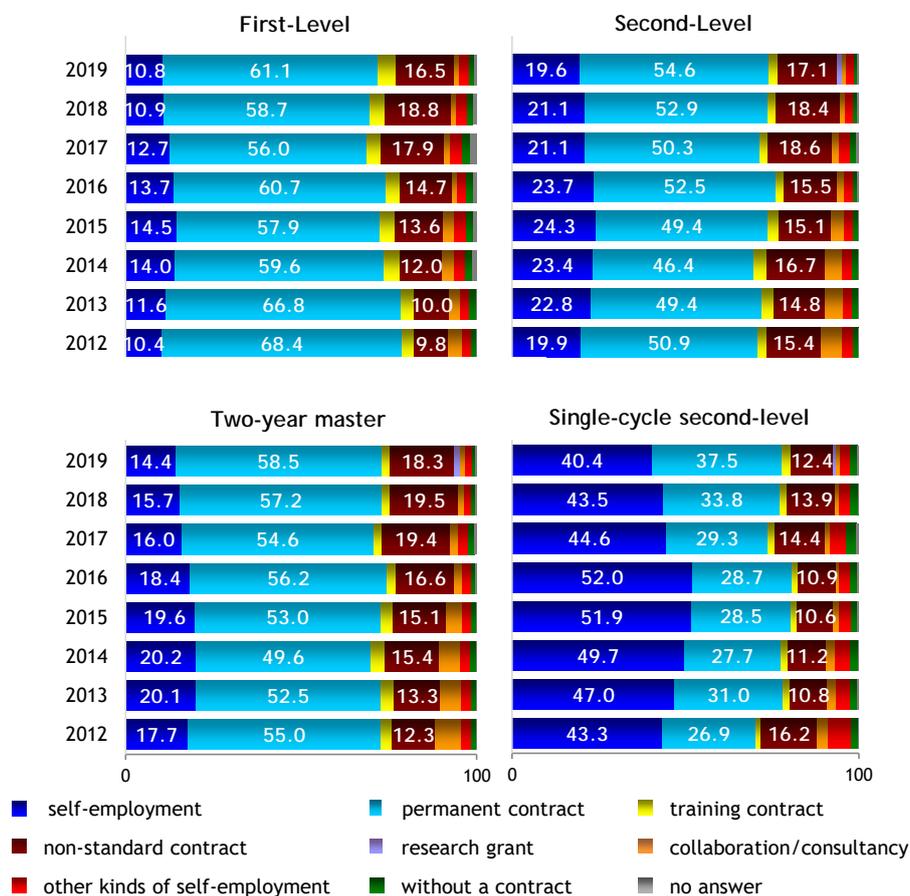
Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

The extension of the observation span beyond the first year after graduation allows for a more complete assessment of the characteristics of the type of work being done by graduates. Three years after graduation, 12.0% of first-level graduates and 16.4% of second-level graduates are self-employed. This figure stands at 12.2% among two-year masters, while it rises to 29.9% among single-cycle second-level graduates. Permanent employment contracts were signed with 45.5% of first-level graduates and 42.9% of second-level graduates (a value that rises further to 47.0% for two-year masters and drops for the reasons already mentioned to 29.5% for single-cycle second-level graduates). Three years after graduation, non-standard work is widespread, involving 23.4% of first-level graduates and 23.9% of second-level graduates (24.4% for two-year masters, 21.5% for single-cycle second-level graduates).

Among 2014 graduates, five years after graduation, self-employment accounts for 10.8% of first-level graduates, rising to 19.6% among second-level graduates. The varying intensity of self-employment among the two populations of second-level graduates is further accentuated when the period of observation is extended to the first five years following graduation: in fact, the values are

equal to 14.4% among two-year masters and 40.4% for single-cycle second-level graduates (Figure 6). The share of those employed with permanent contracts exceeds half of the graduates, reaching 61.1% among first-level graduates and 54.6% among second-level graduates (58.5% among two-year masters and 37.5% among single-cycle second-level graduates). 16.5% of first-level graduates and 17.1% of second-level graduates (18.3% and 12.4%, respectively, for two-year masters and for single-cycle second-level graduates) are employed with a non-standard contract. All other forms of work are decidedly limited, with percentages always below 5.0%. Compared to the 2012 survey, there was an increase in non-standard work (+6.7 points for first-level graduates and +1.7 for second-level graduates). Permanent employment dropped for first-level graduates by 7.3 points and increased by 3.7 points for second-level graduates. Finally, all in all self-employment remained at constant levels given the size of the time interval considered for both populations (+0.4 and -0.3 percentage points, respectively).

Figure 6 - 2007-2014 graduates employed five years after graduation: type of work by degree type. Survey years 2012-2019 (percentage values)



Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

3.1. Smart working and remote working

The 2019 survey, which as has been pointed out several times is unable to grasp the upheaval that occurred in the early months of 2020 due to the pandemic, focused more intently on the spread of smart working and remote working, solutions that allow greater flexibility in the organisation of working time and methods. These are organisational methods introduced at different times: smart working, which in Italian legislation is called “agile work”, was established by Italian Law no. 81/2017, while remote working has been active in our country for some time and has been regulated in different ways by the public and private sectors.

In 2019, these working methods were still not at all widespread among graduates, involving a total of 3.1% of first-level graduates and 4.2% of second-level graduates employed one year after graduation. These values appear stable with respect to the 2018 survey. More specifically, among first-level graduates 1.7% declared that they participate in smart working and 1.4% in remote working. Among second-level graduates, these figures are slightly higher, respectively equalling 2.1% and 2.2%.

Five years after graduation these working methods reach a total of 4.6% of first-level graduates and 5.2% of second-level graduates who declare themselves to be employed. Further breaking down first-level graduates, smart workers accounted for 3.2%, while remote workers accounted for 1.4% of the employed. Among second-level graduates, these percentages respectively amounted to 2.2% and 2.9%.

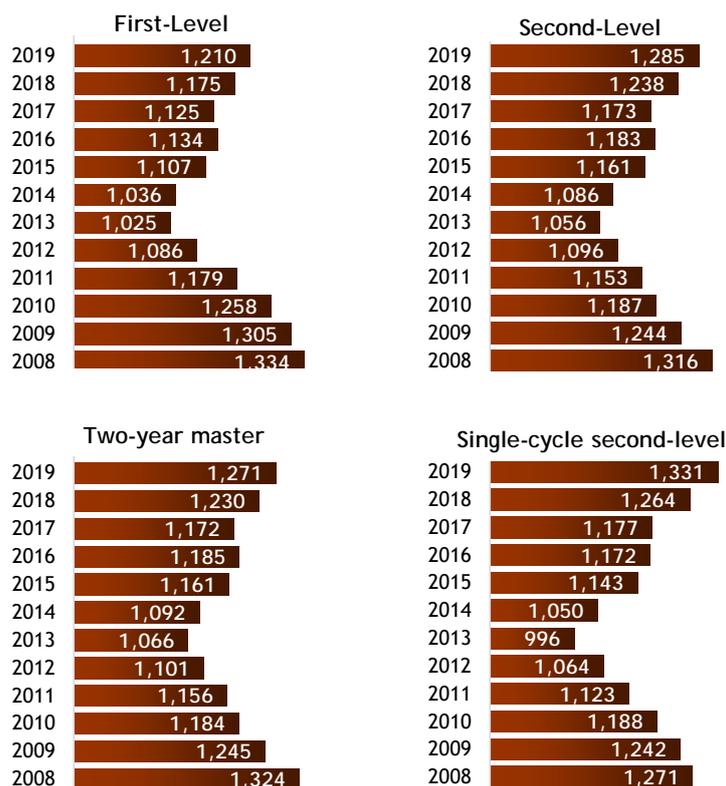
The levels observed are consistent with the findings of Eurostat, although the definitions adopted do not entirely overlap. In 2019, 3.6% of all Italian workers aged 25-49 years old “usually work at home”. This is a lower percentage than the 5.1% recorded for all European countries.

Both one and five years after graduation and for both smart working and remote working the solution is relatively more widespread among men. This has also been seen at a European level.

4. Salaries

On average, the net monthly salary in 2019 one year from graduation is €1,210 for first-level graduates and €1,285 for second-level graduates. There are differences between the salaries received by two-year masters, equal on average to €1,271 net per month, and those of single-cycle second-level graduates, which amount to €1,331 (Figure 7).

Figure 7 - 2007-2018 graduates employed one year after graduation: net monthly salary by degree type. Survey years 2008-2019 (values recalculated based on ISTAT consumer prices, average values in euros)



Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

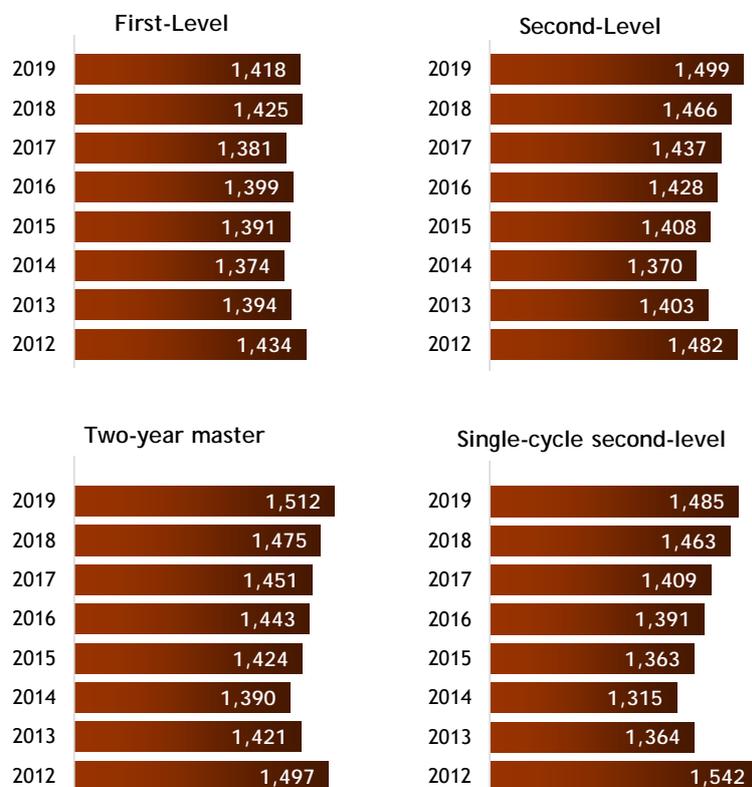
Against a background of broadly stable consumer prices, real wages one year after graduation are on the rise compared to the 2014 survey: +16.7% for first-level graduates, +18.4% for second-level graduates. The improvement in pay was also noted over the past year: +3.0% for first-level graduates and +3.8% for second-level graduates. However, the increase observed is not yet able to make up for the significant loss of salary recorded during the most difficult period of the economic crisis that hit recent graduates, i.e. between 2008 and 2014 (-28.7% for the first-level graduates, -21.2% for the second-level graduates). Obviously, these trends are affected by the different incidence of part-time work, which in 2019 involved 26.6% of first-level graduates and 21.8% of second-level graduates. These percentages have tended to decrease in recent years (compared to 2014, -10.6 and -9.5 percentage points respectively) after the sharp increase seen during the recession (in the period 2008-2014, +18.3

percentage points among first-level graduates and +12.3 points among second-level graduates). Specific studies have confirmed the salary trends described above, also taking into account the spread of part-time work.

Three years after graduation, the net monthly salary reaches €1,351 for first-level graduates and €1,393 for second-level graduates. Broken down even further, €1,397 for two-year masters and €1,384 for single-cycle second-level graduates.

Five years after graduation, the net monthly salary is €1,418 for first-level graduates and €1,499 for second-level graduates. Further differentiating second-level graduates by degree type, it is evident that the salaries received are on average €1,512 for two-year masters and €1,485 for single-cycle second-level graduates (Figure 8).

Figure 8 - 2007-2014 graduates employed five years after graduation: net monthly salary by degree type. Survey years 2012-2019 (values recalculated based on ISTAT consumer prices, average values in euros)



Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

After the general wage contractions in the years of the recession (in the period 2012-2015 equal to -3.0% and -5.0% respectively for first and second-level graduates), in recent years there has been a tendency to increase wages, which has brought wage levels close to those observed in 2012. Compared to last year, salaries were broadly stable for first-level graduates and up by 2.3% for second-level graduates.

Again, the observed trends are affected by the different incidence of part-time work, which in 2019 involved 18.6% of first-level graduates and 12.8% of second-level graduates. In recent years the share of part-time jobs has decreased (compared to 2015, -2.7 percentage points for first-level graduates and -3.9 points for second-level graduates) after the increase seen in the years 2012-2015 (+7.1 percentage points and +2.4 points, respectively). In any case, the salary trends described above are confirmed even considering the evolution of the share of part-time workers.

4.1. Discrepancies in graduates salary levels

A linear regression model was used to analyse the multiple factors affecting graduates' monthly net remuneration. The approach followed is similar to the one described in paragraph 1.1 for the assessment of the probability of being employed, although with some aspects unique to the different phenomenon being studied. The 2018 graduates were considered - first-level graduates who did not continue their education by enrolling in a course of study and second-level - involved one year after graduation.⁹ At the same time, the analysis considers factors related to socio-demographic aspects (gender), the university degree (degree type, field of study) and particular experiences performing during the course of study (work and study abroad). Given the descriptive purposes, for a more detailed analysis it was decided to also consider some characteristics of the job itself, closely related to the salaries of graduates (geographic area of work, full/part time, type of work, company's sector and branch of economic activity, coordination of work done by other people, effectiveness of the degree).¹⁰ These are concomitant factors that were added purely for descriptive purposes.¹¹

The model shown in Table 2 confirms the presence of strong differentiations by degree type: all else being equal, compared to a first-level degree a second-level degree corresponds on average to an estimated increase in pay of €146 net per month.

The field of study also has a decisive influence on the pay differentials of recent graduates. Graduates in five fields of study (medicine, including health professions; engineering; math, physics and natural sciences; chemistry and pharmacy; economics and statistics) receive significantly higher salaries on average: compared to graduates in politics and social sciences the salary difference varies between €318 and €82 net per month. On the other hand, graduates in architecture, psychology and humanities earn less. In this case, the salary penalty, again compared to the graduates in politics and social sciences, ranges between -€78 and -€57 net per month. Traditional gender differences remain significant. In fact, the model estimates that all else being equal one year after graduation men receive on average an additional €93 net per month. Pay differentials can also be seen in geographic terms.

⁹ As with the in-depth study of the probability of being employed, the model does not consider those who were already working upon graduation, those who live abroad, as well as graduates of the defence and security field of study, given their particular educational and work curriculum. Graduates of the pre-reform course of study in Primary Education Sciences were also excluded given the particular nature of their studies and their small number.

¹⁰ This factor was taken into consideration while being aware of the limits linked to possible endogenous causes.

¹¹ As shown in Table 2, almost all parameters have a significance of 1%. Factors that were considered but found not to be significant include aspects such as the family of origin (parents' education), the geographic area of the residence and that of the university, the degree completion time and the age at graduation, the declared intent at graduation to continue with studies, the willingness to travel for business, as well as expectations related to the desired job such as: relations with co-workers in the workplace, independence and autonomy, engagement and participation in decision-making, earning prospects, relevance to studies completed, amount of free time, workplace (i.e. location and related physical characteristics), acquisition of professional skills, relevance to cultural interests, flexibility of working hours. On the other hand, the average exam mark, computer skills, as well as some expectations about the job sought such as career prospects, job security, social utility of the job and prestige were excluded from the model given the modest contribution of the information.

Compared to those employed in the South, graduates working in the North receive on average an extra €141 net per month, while those working in the Centre receive an extra €77 per month. But it is the graduates who work abroad that enjoy the highest salaries (over €450 net per month more). Of course when comparing Italian salaries with those who work abroad the different costs of living should also be taken into account as this has an impact on wages, as also underlined in previous studies on AlmaLaurea data.

Table 2 - 2018 first and second-level graduates interviewed one year after graduation: linear regression model for the assessment the net monthly remuneration. Survey year 2019

| | b | S.E. |
|---|---------|--------|
| Gender (female=0) | | |
| male | 92.507 | 3.976 |
| Degree type (First-Level=0) | | |
| Second-Level | 146.006 | 4.525 |
| Field of study (Politics and social sciences=0) | | |
| Agriculture and veterinary*** | -13.100 | 13.716 |
| Architecture | -78.344 | 11.889 |
| Chemistry and pharmacy | 107.748 | 11.358 |
| Economics and statistics | 81.851 | 8.965 |
| Physical education** | -32.597 | 18.121 |
| Geology, biology and geography*** | 12.930 | 13.306 |
| Law*** | -1.810 | 12.317 |
| Engineering | 146.714 | 9.462 |
| Education | 68.322 | 11.624 |
| Humanities | -57.128 | 11.602 |
| Foreign languages*** | -13.377 | 10.696 |
| Medicine | 317.738 | 10.318 |
| Psychology | -74.170 | 15.358 |
| Math, physics and natural sciences | 134.917 | 13.078 |
| Studied abroad during the course of study (no experience=0) | | |
| study abroad recognised by the course of study | 42.328 | 5.357 |
| personal initiative* | 30.557 | 12.370 |
| Work during studies (no work experience=0) | | |
| studying workers | 62.754 | 11.746 |
| working students | 10.092 | 3.798 |
| Geographic area of work (South=0) | | |
| North | 141.041 | 4.881 |
| Centre | 76.909 | 5.744 |
| Abroad | 461.484 | 9.378 |

(continued)

(continued) Table 2 - 2018 first and second-level graduates interviewed one year after graduation: linear regression model for the assessment the net monthly remuneration. Survey year 2019

| | b | S.E. |
|--|----------|--------|
| Full time/part-time (part-time=0) | | |
| full time | 377.907 | 4.865 |
| Type of work (non-standard contract=0) | | |
| self-employment | 21.795 | 6.316 |
| permanent contract | 52.047 | 5.277 |
| training contract | -59.721 | 5.698 |
| research grant | -95.128 | 18.875 |
| collaboration/consultancy | -123.350 | 11.389 |
| other kinds of self-employment | -214.146 | 8.996 |
| without a contract | -417.244 | 11.625 |
| Company sector (not-for-profit=0) | | |
| public | 205.594 | 10.744 |
| private | 42.433 | 9.680 |
| Company branch (social and personal, recreational and cultural services=0) | | |
| agriculture | 69.170 | 20.365 |
| engineering industries and precision engineering industries | 139.805 | 11.729 |
| building industry ^{***} | -13.294 | 12.722 |
| chemistry/energy | 129.663 | 11.753 |
| manufacturing industry | 115.706 | 11.560 |
| commerce | 95.519 | 9.566 |
| credit and insurance | 203.608 | 12.655 |
| transport, advertising and communications | 97.099 | 11.700 |
| consulting ^{***} | 10.608 | 9.638 |
| computer science | 129.186 | 11.798 |
| other services for companies | 69.421 | 14.261 |
| public administration, armed forces [*] | 38.258 | 17.667 |
| education and research | -71.178 | 9.889 |
| healthcare | 129.226 | 8.848 |
| Formal coordination of the work done by other people (no=0) | | |
| yes | 66.165 | 5.245 |
| Effectiveness of the degree (not very effective/ineffective=0) | | |
| very effective/effective | 110.820 | 6.919 |
| fairly effective | 61.776 | 7.201 |
| Constant | 372.671 | 13.498 |

Note: R-squared = 0.437 (adapted R-squared = 0.436), N = 42,876

* Significance at 5% (p<0.05) - ** Significance at 10% (p<0.10) - *** Not significant

Where not expressly indicated, parameters significant to 1% (p<0.01).

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

One year after graduation, work experience and studies abroad performing during the course of study have a positive effect on net monthly salaries. In particular, all else being equal, studying workers receive €63 more than students who graduate without any work experience. Similarly, those who have completed a period of study abroad recognised by their course of study receive higher pay (+€42 per month) than those who have not had such an experience.

Turning to the specific characteristics of the work found, it is interesting to see the differences in remuneration between full-time and part-time employment, all else being equal. Indeed, the model estimates that full-time workers receive almost €400 net monthly more than those working part time.

All else being equal, the model also finds differences in remuneration when it comes to types of contracts. Compared to graduates hired with a non-standard contract (mainly fixed-term), those who were self-employed received an additional €22 net per month. This is a modest wage difference, which is justified in the fact that self-employed work require more time for greater economic value. Graduates hired with permanent contracts receive an additional €52 net per month. On the other hand, pay differentials are negative mostly for jobs without any contract, occasional professional services

("other kinds of self-employment" in the table) and semi-subordinate work. In fact, all else being equal the pay disadvantage compared to non-standard contracts fluctuates between -€417 and -€123 net per month. Those who work with a research grant or a training contract also earn less than workers employed under non-standard contracts, but in this case the penalty is less pronounced (-€95 and -€60 respectively). The results of the study show that in Italy short-term, temporary forms of contract no longer correspond to high wages.

The model also estimates that those coordinating the work done by others can count on higher average wages: the advantage is €66 net per month. This is linked to the relative professional classification of employed graduates in positions where formal coordination of other people is required.

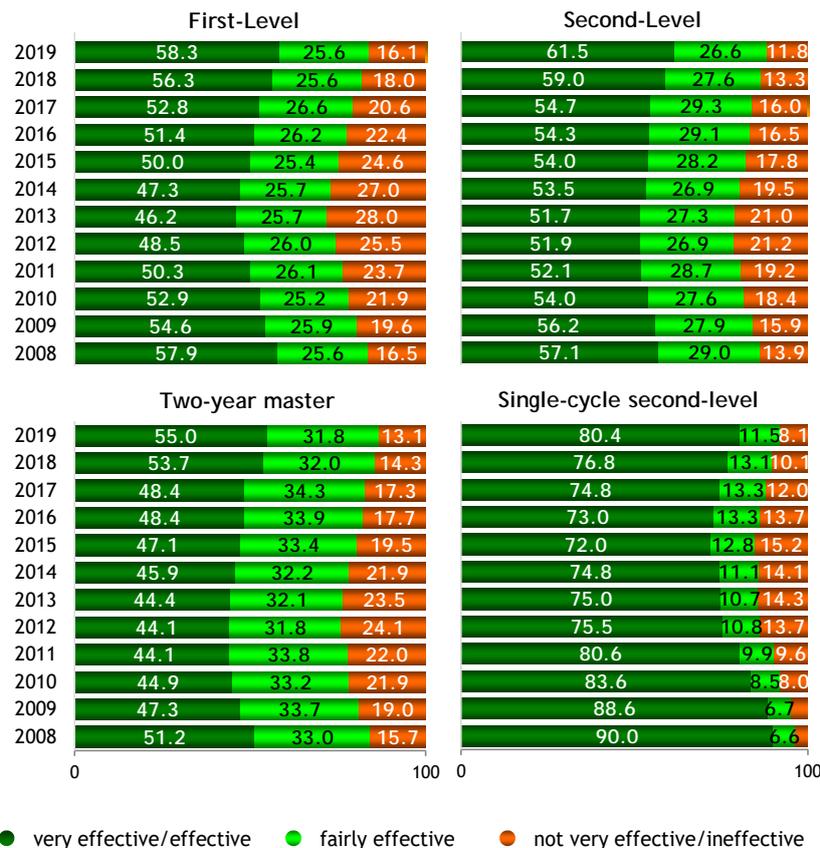
The sector and branch of economic activity have a significant impact on the salaries of graduates. In fact, all else being equal, compared to the non-profit sector, the public sector has an estimated salary advantage of €206, while the private sector has a higher value of €42. The branches of economic activity with the largest estimated wage differentials compared to social and personal, recreational and cultural services are in the credit and insurance (+€204), the engineering industries and precision engineering industries (+€140), the chemistry/energy industries (+€130), the healthcare and computer science (+€129 for both) and manufacturing (+€116). Lower wages are earned by graduates working in the field of education and research: compared again to the field of social and personal, recreational and cultural services the wage penalty is equal to -€71.

Finally, the degree's effectiveness with respect to the job seems to have a positive effect on graduates' remuneration. All else being equal, those who consider their qualifications to be very effective or effective in their work receive €111 more than those who consider their qualifications to be little or not at all effective. This result is very interesting because degree effectiveness, as will be better seen in the next paragraph, measures the correspondence between university studies and the actual work done. It therefore represents a subjective measure of the alignment that, as demonstrated by other studies, is generally positively related to the salary received.

5. Effectiveness of the degree on the job

Graduation effectiveness is a subjective measure of consistency between studies and the work done, as it is based on assessments expressed by the employed graduates. Together with regulatory and statistical measures, it is a way to identify and analyse horizontal or vertical mismatches. Regarding the graduates' responses with respect to the use of skills acquired during studies, as well as the formal or substantial need for the degree to do the job, it is noted that for more than half of graduates who are employed after one year the degree is considered "very effective or effective": 58.3% for first-level graduates and 61.5% for second-level graduates. Given the different nature of the courses of study and related employment opportunities, it is only natural to find significant differences between the two-year masters, among whom the degree is "very effective or effective" for 55.0% of the employed, and the single-cycle second-level graduates, for whom effectiveness rises to 80.4% (Figure 9). Compared to the 2014 survey, there was an increase of 11.0 percentage points for first-level graduates and 8.0 points for second-level graduates (only in the last year, +2.0 and +2.5 percentage points respectively). The difficulties encountered in the period 2008-2014 led to a reduction in the number of graduates who declared the degree very effective or effective: -10.6 percentage points for first-level graduates and -3.6 points for two-year masters. The improvement observed in recent years has overcome the contraction that occurred during the years of the recession, both for first-level graduates and second-level graduates, who in 2019 have the highest value of effectiveness.

Figure 9 - 2007-2018 graduates employed one year after graduation: degree effectiveness by degree type. Survey years 2008-2019 (percentage values)



Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

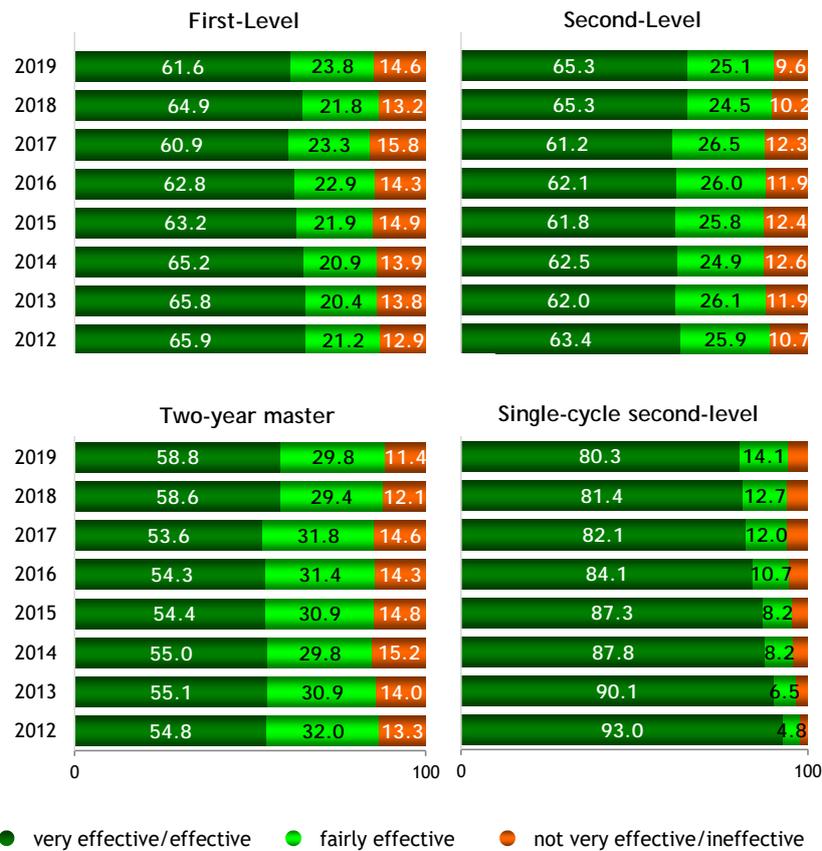
As we have seen, as time passes, the characteristics of the job and the effectiveness of the degree improve. In fact, three years after graduation 63.2% of first-level graduates and 63.0% of second-level graduates find the degree to be "very effective or effective" (more specifically, 57.7% of two-year masters and up to 78.3% of single-cycle second-level graduates).

After five years from graduation, these rates reach respectively 61.6% and 65.3% for the first and second-level employed graduates. While for graduates of the two-year masters the effectiveness of the degree reach only 58.8%, for single-cycle second-level graduates the effectiveness is rated as high as 80.3% (Figure 10).

Following the trend of declining levels of effectiveness observed during the recession there was a slight improvement in recent years, bringing the levels of effectiveness closer to the values observed in 2012, even exceeding them among second-level graduates. This is also due to a decrease compared to last year for first-level graduates, and on the contrary an increase for second-level graduates.

The situation outlined here is essentially confirmed if the two components of the effectiveness are considered separately, i.e., the use of the skills acquired at the university on the job and the formal or substantial need for the degree to perform the job.

Figure 10 - 2007-2014 graduates employed five years after graduation: degree effectiveness by degree type. Survey years 2012-2019 (percentage values)



Note: for the first-level, only graduates who are not enrolled in another course of study are considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

The complete documentation is available at: www.almalaurea.it/en/universita/indagini/laureati/occupazione.

Unless otherwise specified, reproduction for non-commercial purposes with a reference to the source is authorised.

Consorzio Interuniversitario AlmaLaurea

viale Masini, 36 - 40126 Bologna

tel. +39 051 6088919

fax +39 051 6088988

www.almalaurea.it



Viale Masini, 36 - 40126 Bologna
Tel. +39 051 6088919 Fax +39 051 6088988

supporto.laureati@almalaurea.it
servizio.aziende@almalaurea.it
supporto.universita@almalaurea.it
www.almalaurea.it