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AL **ALMALAUREA**

23rd Report
Occupational Condition
of Graduates

2021 Summary Report

Summary of the 23rd Survey on the Occupational Condition of Graduates (the 2021 AlmaLaurea Report)

As a result of the pandemic crisis that has been characterising the national and international context for over a year, the future scenarios are increasingly defined by a changing mix of vulnerability, uncertainty, complexity and ambiguity. Thus, caution must be exercised in interpreting the results of the 2020 survey, especially from a forward-looking perspective. At any rate, this Report is a useful tool for assessing the reference context and developing policies aiming at economic, social and environmental sustainability, especially in this historical phase. Together with the Report on the Graduates' Profile, this report also makes a contribution to the achievement of the objectives of the Next Generation EU and the National Plan for Recovery and Resilience in the tertiary education sphere. Also, it helps identifying the definition of a European system for graduate tracking in the medium to long term.

The 23rd AlmaLaurea Survey on the Occupational Condition of Graduates provides a composite picture, which shows some critical points in the employment opportunities for recent graduates in 2020. At five years after graduation, the effects of the pandemic on the indicators analysed appear marginal instead. Among graduates interviewed one year after graduation, indeed there was a drop in the employment rate and a corresponding increase in the unemployment rate compared to the previous survey. In view of the fact that most of them were able to rely on a limited period of favourable economic conditions after graduation but, more importantly, before the outbreak of the pandemic brought the country to a standstill for several months. Although the differences are small in terms of overall employment rate, women - compared to men - seem to have suffered more from the effects of the pandemic. That especially in the second half of the year, when economic activities were gradually re-opening. And furthermore, graduates living in the Centre and North are more penalised than those in the South.

A further aspect to be highlighted concerns the characteristics of the job performed: the pandemic seems to have affected above all the opportunities to find a job, and less the quality of the type of employment found. Apart from representing an average of the profoundly heterogeneous situations experienced by those who entered the labour market - before and after the emergence of the pandemic - that is connected to the policy interventions implemented in order to contain its effects. In such context, the remote working exploded during the 2020s represents a mode that will be interesting to monitor well beyond the end of the current emergency phase. The impact of the accumulation of previous crises on inequality also needs to be carefully monitored. In fact, the current historical context is shaking some of the beliefs inherited from the past, including the idea that in order to guarantee equality one can limit oneself to guaranteeing equal starting opportunities. The education system plays a central role here, but without guarantees that equality of opportunity will lead to equality of outcome, the challenge is likely to be unmet.

The 23rd AlmaLaurea Survey on the Occupational Condition of Graduates involved 655,000 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, 287,000 are first and second-level graduates in 2019 involved one year after graduation; 117,000 are second-level graduates in 2017 involved three years after graduation; 110,000 are second-level graduates in 2015 involved five years after graduation; 74,000 and 67,000 are first-level graduates involved three and five years after graduation, in 2017 and 2015 respectively, and who did not continue their university education.

On an annual basis, the respondent graduates represent about 90% of the whole graduates attending Italian universities. Such a population ensures a more than a meaningful frame of reference for the entire university system, especially if the main characteristics of the observed populations are considered.

The graduates involved in the survey (excluding three- and five-year undergraduates) were contacted using a dual survey technique, CAWI (Computer-Assisted Web Interviewing) and CATI (Computer-Assisted Telephone Interviewing). Indeed, the necessity to contain survey costs and the wide availability of e-mail addresses suggested contacting graduates via e-mail, and inviting them to fill in a questionnaire hosted on the AlmaLaurea website. The CAWI was combined by the CATI as to contact those who did not respond to the online questionnaire. Such a twofold survey methodology - that is to say CAWI+CATI - led to an overall response rate of 81.4% among first and second-level graduates one year after graduation, 71.5% among second-level graduates three years after graduation and 66.0% among second-level graduates five years after graduation, measured in relation to graduates who were contacted with their consent in accordance with the GDPR (General Data Protection Regulation). First-level graduates at three and five years were exclusively contacted through a CAWI-type survey instead, which achieved response rates of 20.3% at three years and 14.9% at five years. Such rates are obviously lower given the survey methodology used. The results were subject to a special statistical procedure for proportioning adjustments, so as to obtain estimates that were representative of all the graduates of the Italian universities.

This Summary highlights the main features of the employment performance of first and second-level graduates,[2] drawing a distinction between two-year and single-cycle master's degrees. However, it should be noted that first-level graduates largely continue their studies by enrolling in a second-level course of study. As a matter of fact, 66.5% of those interviewed in the 2019 cohort made this choice.

Thus, it was considered appropriate to narrow down the analysis among first-level graduates to those who after graduation did not enrol in another course of study (32.6%), in order to better monitor the response of the labour market.

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[1] After some experimental work, AlmaLaurea has been carrying out annual surveys on the Profile and Occupational condition of PhD and Academic Master graduates since 2015. The results of the most recent surveys are available on www.almalaurea.it/universita/indagini (Italian version).

[2] The considerations here refer to the 2007-2019 cohorts and do not take into account the results of the 2005 and 2006 first-level graduates. Second-level graduates include two-year masters and single-cycle second-level graduates, and until the 2018 cohort graduates from the pre-Bologna Process reform course of study in Primary Education Sciences. The employment outcomes of the latter are not examined because of their peculiarity and small number. The complete documentation is available at www.almalaurea.it/en/universita/indagini/laureati/occupazione.

For each analysed indicator, the figures show the historical series of first and second-level graduates from 2007 to 2019 - interviewed one year after graduation (i.e. from 2008 to 2020), and of first and second-level graduates from 2007 to 2015 at five years after graduation (i.e. interviewd from 2012 to 2020).

1. Employment rate

In 2020, the employment rate - which also includes those engaged in paid training - is 69.2% among first-level graduates and 68.1% among second-level graduates in 2019 one year after graduation; among two-year masters, the employment rate rises to 72.1%, while for single-cycle second-level graduates it is 60.7% (Figure 1).

A comparison with the previous AlmaLaurea surveys shows that recent labour market trends must be considered. They were strongly influenced by the Covid-19 health emergency that has also invested our Country - starting from the first months of 2020 - and impacting on graduates' employment opportunities. With respect to what was observed in the previous survey, in fact, in 2020 the employment rate fell by 4.9 percentage points for first-level graduates and by 3.6 points for second-level graduates. Such a sharp contraction comes after several years during which there has been a slow but steady recovery in the labour market's absorption capacity.

The framework outlined by the 2020 survey is very complex, and for a correct reading of the data it is necessary to pay attention to some essential aspects. The methodology of the survey foresees the collection of interviews at two different time frames. The first shot was in spring 2020, where graduates from the January-June period were contacted. The second shot was in autumn 2020, where graduates from the July-December period were contacted. The former counted on the better labour market conditions of the pre-Covid phase for a larger number of months, but were interviewed during the *lockdown* and thus in the phase of greatest economic activity standstill. In turn, graduates from the July-December period and contacted in the autumn of 2020 had less time to enter the labour market before the pandemic broke out. At the same time, they experienced the *lockdown* period, but were interviewed during the subsequent phase of gradual reopening of economic activity. Furthermore, the 2020 results are also affected by the considerable recruitment of medical doctors and nurses, which started from the very beginning of the emergency (Decree Law No. 14/2020 and subsequent amendments and additions). Therefore, a specific analysis was carried out on one-year graduates[3] as to consider the different labour market conditions and opportunities for graduates. Such an insight allowed for graduation period and thus the survey period. Moreover, the analyses were conducted excluding graduates in health and pharmacy.[4] As for this group, the employment rate among graduates from January-June 2019 and interviewed in spring 2020 is 63.9% for first-level graduates and 68.6% for second-level graduates. These values are remarkably lower (by 7.1 and 2.4 percentage points, respectively) compared to the employment rate in 2019 in the sub-population mentioned above (71.0% among both first and second-level graduates). The employment rate among graduates in July-December

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[3] The reason for focusing on one-year graduates only is that five-year graduates were affected by the pandemic much less in 2020, as they have already been in the labour market for some time.

[4] The results described below are broadly confirmed even excluding those who were working at the time of graduation.
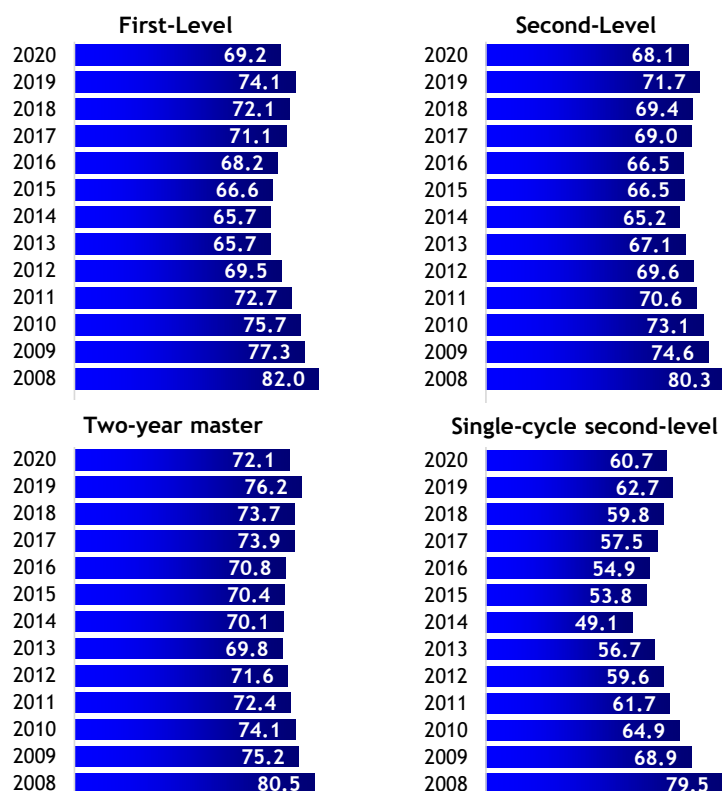
2019, who were contacted in autumn 2020, falls further but to a much lesser extent. That is to say, it is 62.4% for first-level graduates and 67.1% for second-level graduates.

In terms of employment rate, the pandemic seems to have affected mainly women and areas in the Centre and North of Italy.[5] Although the differences are small compared to the previous survey, the employment rate has generally decreased more for women than for men. Especially among first-level graduates (-8.8 and -7.2 points respectively). Of note, for women the deterioration was strongest in the second half of the year, that is the period characterised by the gradual re-opening of economic activities.

In addition, graduates resident in the Centre and North regions were more penalised than those in the South. Again with reference to first-level graduates (i.e. those who have recorded the greatest contractions) and compared to the previous survey, the employment rate has decreased by 8.7 percentage points for first-level graduates resident in the North and 9.5 points for those resident in the Centre. On the other hand, the contraction for graduates resident in the South was 6.2 percentage points.

These trends are confirmed in most fields of study.

Figure 1 - 2007-2019 graduates surveyed one year after graduation: employment rate by degree type. Survey years 2008-2020 (percentage values)

First-Level		Second-Level	
2020	69.2	2020	68.1
2019	74.1	2019	71.7
2018	72.1	2018	69.4
2017	71.1	2017	69.0
2016	68.2	2016	66.5
2015	66.6	2015	66.5
2014	65.7	2014	65.2
2013	65.7	2013	67.1
2012	69.5	2012	69.6
2011	72.7	2011	70.6
2010	75.7	2010	73.1
2009	77.3	2009	74.6
2008	82.0	2008	80.3

Two-year master		Single-cycle second-level	
2020	72.1	2020	60.7
2019	76.2	2019	62.7
2018	73.7	2018	59.8
2017	73.9	2017	57.5
2016	70.8	2016	54.9
2015	70.4	2015	53.8
2014	70.1	2014	49.1
2013	69.8	2013	56.7
2012	71.6	2012	59.6
2011	72.4	2011	61.7
2010	74.1	2010	64.9
2009	75.2	2009	68.9
2008	80.5	2008	79.5

Note: as for the first-level, only graduates not enrolled in another degree course were considered. Until the 2018 cohort, 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.

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[5] Again, graduates in health and pharmacy were excluded from the analyses.

Three years after graduation, the employment rate reached 84.9% among first-level graduates and 83.9% among second-level graduates (86.6% for two-year masters and 77.8% for single-cycle second-level graduates).

Five years after graduation, the employment rate was 88.1% for first-level graduates and 87.7% for second-level graduates. By degree type, the employment rate reaches 88.1% for two-year masters, a value slightly higher than the 86.3% recorded for single-cycle second-level graduates (Figure 2). In terms of employment, graduates five years after graduation seem to have experienced the effects of the pandemic to a decidedly marginal extent compared to new graduates, but the result is not entirely linear. A comparison with last year's survey suggests that the employment rate has decreased by 0.6 percentage points among first-level graduates, and by contrast increased by 0.9 points among second-level graduates. However, these trends are part of a framework characterised by a slow but progressive improvement in the absorption capacity of the labour market, which has been verified for some years now for graduates five years after graduation.

Figure 2 - 2007-2015 graduates surveyed five years after graduation: employment rate by degree type. Survey years 2012-2020 (percentage values)

First-Level		Second-Level	
2020	88.1	2020	87.7
2019	88.7	2019	86.8
2018	88.6	2018	85.5
2017	87.8	2017	86.8
2016	87.1	2016	84.6
2015	85.6	2015	84.7
2014	86.0	2014	86.6
2013	88.6	2013	88.0
2012	90.6	2012	90.4

Two-year master		Single-cycle second-level	
2020	88.1	2020	86.3
2019	87.0	2019	85.1
2018	85.6	2018	83.9
2017	87.3	2017	83.8
2016	84.3	2016	83.5
2015	84.3	2015	84.7
2014	85.9	2014	86.8
2013	87.1	2013	90.2
2012	90.2	2012	89.7

Note: as for the first-level, only graduates not enrolled in another degree course were 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. Employment rate insight: outcomes of a logistic regression model

The employment outcomes of graduates highlight remarkable differences, which broadly speaking involve all the degree types examined. In particular, these differences relate to gender, geographic area of residence as well as the completed course of study.

In order to jointly analyse the factors affecting the probability of being employed, a logistic regression model was used again in this report. The 2019 graduates were considered and interviewed one year after obtaining their degree. Such group included both first-level graduates - who did not continue their education by enrolling in another course of study - and second-level graduates - who were interviewed one year after obtaining their degree.[6]

The analysis presented below looks at factors linked to socio-demographic aspects (gender; parents' qualifications; geographic area of residence), university qualifications (degree type; field of study; geographic area of the university; age at graduation; degree completion type; exam marks, geographic mobility for study purposes) and experience and skills acquired during the study period (internships/curricular traineeships; work or study experience abroad; computer skills). Finally, emphasis was placed on the aspirations and inclinations declared by graduates on the eve of concluding their studies (intention to continue their studies; willingness to travel for business; expectations regarding the job they intend to seek after graduation, in terms of career prospects; acquisition of professional skills; job security; relevance to cultural interests; involvement and participation in work and decision-making processes; flexibility of working hours).[7]

As Table 1 shows (the only significant variables), belonging to certain fields of study has an effect on the employment opportunities of new graduates. In fact, all other things being equal, the most favoured are graduates from the information and communication technologies (ICTs); the engineering and engineering trades; the health and pharmacy; education; architecture and construction and, finally, natural sciences, mathematics, physics and statistics field of study. Less favoured graduates are those graduated in psychology, arts and design as well as law.

Furthermore, it can be observed that, all other conditions being equal, second-level degrees show greater employment opportunities one year after graduation. As a result, second-level graduates (which include both two-year masters and single-cycle second-level graduates) are 11.2% more likely to be employed than first-level graduates. However, this result has to be treated with extreme caution, since profoundly different populations are being compared, both in terms of the educational path undertaken and in terms of professional and study prospects. Especially among second-level graduates, there is a notable proportion of those who continue their education by enrolling in activities such as internships or post-graduate schools which, if paid, place them among the employed. These types of activities, which are preparatory to starting freelance activities, are for obvious reasons much less common among first-level graduates. Thus, as might be expected, those who, at the time of obtaining their degree, declared that they did not intend to continue their studies are 41.4% more likely to be employed within a year than those who expressed the intention of not continuing their studies.

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[6] The model does not consider those already working at the time of graduation and those living abroad. Due to the structure of the model, no further selections were made in relation to the pandemic context (i.e. excluding medical graduates).

[7] As shown in Table 1, almost all parameters have a relevance of 1%. Factors linked to aspects of the pre-university curriculum (type of diploma and high school/secondary school diploma mark) were taken into account, although they were not found to be significant, as well as the expectations on the job sought linked to: relations with colleagues in the workplace, independence and autonomy, social utility of the job, earning prospects, coherence with the studies completed, prestige, free time, workplace (i.e. location and relative physical characteristics). The graduation mark was indeed excluded from the model because of its poor informative contribution.

The traditional gender and, above all, territorial differences remain significant, showing, *ceteris paribus*, the better position of men (17.8% more likely to be employed than women) and of those who reside or have studied in the North (as for residence, +30.8% is more likely to be employed than those who reside in the South; as for the geographic area of study, +53.3% is more likely to be employed than those who have studied in the South).

In addition, those who live in a province other than their place of study are 5.2% more likely to be employed in one year than those who study in the same province of residence.

Although the analysis leads to the estimation of a limited influence, graduates from families in which at least one parent has a degree show a lower probability of employment (-11.1%) one year after graduation, compared to those who have parents with a non-university degree. The hypothesis embedded in this result is that the family context allows graduates to choose to delay entry into the labour market while waiting for a better placement. This is part of a broader context in which the family of origin influences both the educational and occupational choices of graduates. In this regard, specific studies have compared the university studies of graduates with those of their parents, highlighting how the phenomenon of inheritance of the degree is especially widespread among graduates (i.e. medicine, law and architecture) which give access to the freelance profession. Moreover, such courses of study require a further cycle of specialisation in order to enter into freelance work.

As calculated by taking into account their distribution by university, field of study and degree class, exam marks have a positive effect on employment opportunities. For instance, the chance of being employed one year after graduation increases by 14.6% for those with scores above the median value. Compliance with the deadlines set by the regulations for the completion of the course of study also favours better employment opportunities. Compared to those who graduate at least two years late, graduates who finish their studies within prescribed degree completion time are 21.8% more likely to be employed one year after graduation; those who graduate one year late are 11.2% more likely to be employed. All things being equal, age at graduation has a negative effect (-4.3% for each additional year) on the probability of being employed one year after graduation. This is connected with the fact that those who enter the labour market at a younger age probably have more "attractive" prospects and availability to employers even on a contractual basis.

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 completion of studies. All other things 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 84.2% more likely to be employed than students who graduate without any work experience. However, working students (i.e. those who have had other types of work experience) are 37.7% more likely to be employed than those who have no work experience.

Those who have done a curricular internship are, *ceteris paribus*, 12.2% more likely to be employed one year after graduation than those who have not performed such an activity.

Similarly, those who have spent a period of study abroad are more likely to be employed than those who have never spent a period abroad, whether through experience recognised by their course of study[8] (+14.4%) or by their personal initiative (+10.3%).

Computer skills also have a positive effect on the possibility of finding a job within the first year after graduation: the likelihood of being employed among those who know at least five IT tools is 29.2% higher than among those who know at most two tools. Knowledge of IT and digital tools has become essential in today's society. A specific study carried out by AlmaLaurea investigated knowledge of IT tools at a gender level, which highlighted the existence of differences in employment performance and job characteristics.

Some aspects of the job that graduates said were very important to them before completing their studies also have a positive effect on employment. All other conditions being equal, graduates who are about to graduate and therefore to enter the labour market are more likely to be employed one year after graduation if they attribute great importance ("definitely yes" mode) to the possibility of a career (+14.5%), to the acquisition of professional skills (+8.9%) and to involvement and participation in work and decision-making processes (+8.0%). These are aspects for which a direct and faster entry into the labour market is crucial, in order to gain experience and acquire skills. The willingness to travel for work reasons is also rewarding in terms of employment (11.7% more likely than those who do not declare this willingness), regardless of the frequency. Against this, there is a lower probability of employment for those who consider important to be flexible in their working hours (-8.9%), to meet their cultural interests (-8.2%), and to have a job security (-8.0%); these aspects probably lead graduates to be more selective while searching for a job.

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[8] These are study experiences within the framework of a European Union programme (i.e. Erasmus) and other programmes recognised by the course (i.e. Overseas).

Table 1 - 2019 first and second-level graduates interviewed one year after graduation: logistical regression model for the assessment the probability of being employed. Survey year 2020

	b	S.E.	Exp(b)
Gender (female=0)			
male	0.164	0.018	1.178
At least one parent with a university degree (no=0)			
yes	-0.117	0.018	0.889
Geographic area of residence (South=0)			
North	0.269	0.031	1.308
Centre	0.205	0.033	1.228
Degree type (First-Level=0)			
Second-Level	0.106	0.021	1.112
Field of study (Humanities and literature=0)			
Agriculture, forestry and veterinary	0.553	0.065	1.738
Architecture and construction	0.836	0.053	2.307
Arts and design	-0.251	0.063	0.778
Economics	0.543	0.048	1.721
Law[*]	-0.113	0.048	0.893
Information and communication technologies (ICTs)	1.922	0.117	6.834
Engineering and engineering trades	1.777	0.057	5.909
Education	0.949	0.056	2.584
Foreign languages[***]	-0.057	0.054	0.944
Health and pharmacy	1.317	0.046	3.731
Politics, social sciences and communications[***]	-0.079	0.051	0.924
Psychology	-0.699	0.062	0.497
Natural sciences, mathematics, physics and statistics	0.726	0.052	2.068
Sports sciences and physical education[***]	0.055	0.089	1.056
Geographic area of university (South=0)			
North	0.427	0.032	1.533
Centre	0.219	0.032	1.245
Age at graduation	-0.044	0.003	0.957
Degree completion time (2 or more years late =0)			
on time	0.197	0.025	1.218
1 year late	0.106	0.026	1.112
Exam mark (below the median value = 0)			
mark above or equal to the median value	0.136	0.017	1.146
Comparison between province of residence and of study (same province=0)			
reside in a province other than the place of study	0.051	0.018	1.052
Internships organised by the course of study (no=0)			
yes	0.115	0.019	1.122
Work during studies (no work experience=0)			
studying workers	0.611	0.054	1.842
working students	0.320	0.017	1.377
Studied abroad during the course of study (no experience=0)			
study abroad recognised by the course of study	0.134	0.025	1.144
personal initiative[**]	0.098	0.059	1.103
Number of known IT tools (almost 2 IT tools=0)			
3 or 4 IT tools	0.121	0.025	1.128
5 or more IT tools	0.256	0.022	1.292
Plan to pursue postgraduate studies (yes=0)			
no	0.347	0.018	1.414
Willingness to travel for business (no=0)			
yes[*]	0.111	0.050	1.117
Aspects important for job-seeking: career prospects (no=0)			
yes	0.135	0.021	1.145
Aspects important for job-seeking: acquisition of professional skills (no=0)			
yes	0.085	0.025	1.089
Aspects important for job-seeking: job security (no=0)			
yes	-0.083	0.021	0.920
Aspects important for job-seeking: relevance to cultural interests (no=0)			
yes	-0.085	0.018	0.918
Aspects important for job-seeking: involvement and participation in work and decision-making processes (no=0)			
yes	0.077	0.020	1.080
Aspects important for job-seeking: flexibility of working hours (no=0)			
yes	-0.093	0.019	0.911
Constant	-0.399	0.112	0.671

Note: Correct classification rate of 66.5%; N=77,510; R2 Nagelkerke=0.185.
* Significance at 5% (p<0.05) - ** Significance at 10% (p<0.10) - *** Not significant.
Where not explicitly stated, parameters significant at 1% (p<0.01).
Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

2. Unemployment Rate

The considerations made so far (Figure 3) have been even more clearly confirmed by the analysis of the unemployment rate. One year after graduation, the unemployment rate is 17.1% among both first and second-level graduates, with slight differences between two-year masters (17.3%) and single-cycle second-level graduates (16.6%). With respect to the 2019 survey, the unemployment rate increased by 2.9 percentage points for first-level graduates and 3.3 points for second-level graduates, thus putting a brake on the improving trend seen in recent years. Again, if we exclude graduates in health and pharmacy - who were largely recruited during the pandemic emergency - then among graduates from January-June 2019, surveyed in spring 2020, the unemployment rate is 18.5% for first-level graduates and 15.5% for second-level graduates (both rates are up on the unemployment rate in 2019 by 2.7 and 0.7 percentage points, respectively). As for graduates from July-August 2019 surveyed in autumn 2020, the unemployment rate increases further to 22.8% and 19.6% respectively (+4.3 and +4.1 percentage points compared to the rate for graduates from January-June 2019). The gradual recovery of economic and productive activities after the *lockdown* has led a substantial share of graduates to seek work, thus causing the unemployment rate to further increase.

Figure 3 - 2007-2019 graduates surveyed one year after graduation: unemployment rate by degree type. Survey years 2008-2020 (percentage values)
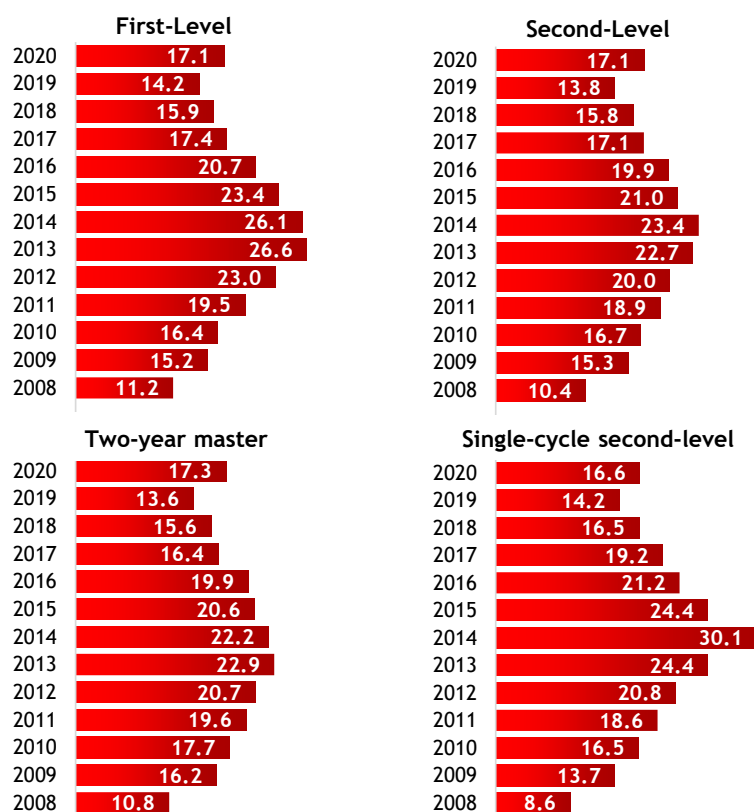
Note: as for the first-level, only graduates not enrolled in another degree course were considered. Until the 2018 cohort, second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

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

Accordingly, for a complete analysis of the phenomenon, the size of the labour force needs to be considered (i.e. those who have entered the labour market either because they are employed or because they are actively seeking work). In 2020, one year after graduation, 83.5% of first-level graduates and 82.1% of second-level graduates were part of the labour force (for two-year masters, such a figure was 87.2%, while for single-cycle second-level graduates it was 72.8%). Both values are lower than in the previous survey (-2.8 and -1.0 percentage points, respectively). By excluding from the analysis graduates in health and pharmacy, among graduates from the January-June 2019 period and surveyed in the spring of 2020, the labour force was 78.4% for first-level graduates and 81.2% for second-level graduates. That is to say that with reference to all 2018 graduates surveyed one year after graduation, a drop by 5.9 and 2.1 percentage points respectively, is shown. Among July-August 2019 graduates surveyed in autumn 2020, however, the labour force increases to 80.9% for first-level graduates and 83.5% for second-level graduates. This frame helps to justify the increase in the unemployment rate over the two survey periods, as shown before.

Three years after graduation, the unemployment rate is 9.4% for first-level graduates and 8.3% for second-level graduates. In detail, 7.6% for two-year masters and 10.1% for single-cycle second-level graduates.

Five years after graduation, unemployment levels reach around 6% (Figure 4). In 2020, the unemployment rate is 6.3% among first-level graduates and 5.9% among second-level graduates. By degree type, there are no noteworthy differences: the unemployment rate is 5.9% among two-year masters and 6.0% among single-cycle second-level graduates. Despite the pandemic emergency, the comparison with the 2019 survey shows a substantial level of stability in the unemployment rate, both among first-level graduates (+0.4 percentage points) and second-level graduates (-0.3 points). The pattern is confirmed by the analysis of the labour force. As a result, five years after graduation is 94.1% for first-level graduates and 93.1% for second-level graduates (93.6% among two-year master's degree graduates and 91.8% among single-cycle second-level graduates). Such values are substantially stable compared to the previous survey.

Figure 4 - 2007-2015 graduates surveyed five years after graduation: unemployment rate by degree type. Survey years 2012-2020 (percentage values)

First-Level

Year	Value
2020	6.3
2019	5.9
2018	6.5
2017	6.7
2016	7.8
2015	9.1
2014	8.9
2013	7.8
2012	6.0

Second-Level

Year	Value
2020	5.9
2019	6.2
2018	6.8
2017	6.8
2016	8.5
2015	9.1
2014	8.5
2013	7.6
2012	5.7

Two-year master

Year	Value
2020	5.9
2019	6.3
2018	6.9
2017	6.9
2016	8.9
2015	9.7
2014	9.2
2013	8.5
2012	5.9

Single-cycle second-level

Year	Value
2020	6.0
2019	6.7
2018	7.2
2017	7.5
2016	8.7
2015	8.2
2014	7.3
2013	5.3
2012	5.8

Note: as for the first-level, only graduates not enrolled in another degree course were considered; second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.
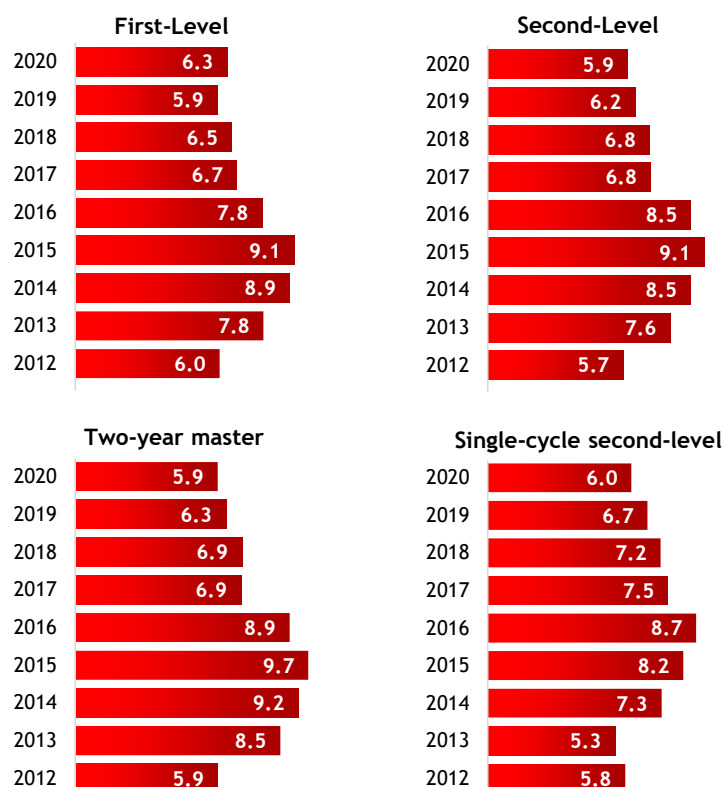
Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

3. Type of work

The analysis of the characteristics of the work performed paints an unclear picture, as the results of the 2020 survey are composite and strongly dependent on the timing of entry into the labour market (i.e. before or after the emergence of the Covid-19 pandemic). However, the pandemic seems to have mainly affected the chances of finding a job rather than the quality of the work performed. It is likely that the set of policy interventions implemented to contain the effects of the pandemic has an effect on such result.

All in all, one year after graduation, 13.1% of employed first-level graduates and 13.7% of employed second-level graduates were self-employed (Figure 5).[9] Said value is 8.1% for two-year masters, while it rises to 27.5% for single-cycle second-level graduates due to the very nature of these courses of study, which are oriented towards starting freelance activities. The permanent contract involves 26.9% of first-level employees and 23.4% of second-level employees. Also in this case the differences between two-year masters (28.1%) and single-cycle second-level graduates (11.8%) are noticeable. In 2020, the prevalent form of employment among graduates employed one year after graduation is confirmed by the non-standard contract (in particular fixed-term employment), which concerns 40.1% of first-level

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[9] Except for training activities, job characteristics are collected on graduates in paid employment.

graduates and 35.6% of second-level graduates. Nonetheless, some differences among degree types are identified: 33.6% for two-year masters and 40.7% for single-cycle second-level graduates. On the other hand, those employed with a training contract accounted for 11.0% of first-level graduates and 15.1% of second-level graduates. In particular, 18.5% among two-year masters and 6.8% among single-cycle second-level graduates. Other forms of self-employment - mainly occasional collaboration contracts - involved 3.6% of first-level graduates and 4.7% of second-level graduates (4.2% and 5.8%, respectively, for two-year masters and single-cycle second-level graduates), while semi-subordinate work (collaboration/consultancy) involved 2.8% and 3.3% (3.2% and 3.5%, respectively, for two-year masters and single-cycle second-level graduates). Finally, unregulated employment refers to 2.1% of first-level employees and 2.3% of second-level employees (2.2% for two-year masters and 2.8% for single-cycle second-level graduates). The comparison with the previous survey shows a complex picture, with trends that are often different between first and second-level graduates. The only elements common to both groups are an increase, of 1.3 points and 2.0 percentage points respectively, in non-standard employment and a contraction in both training contracts (-0.8 and -0.9 points) and non-regulated activities (-0.9 and -1.2 points).

However, as stated above, a number of aspects that characterised the 2020 labour market need to be kept in mind. Firstly, the different market conditions before and after the outbreak of the pandemic, which was initially characterised also by a protracted *lockdown* period. Secondly, the employment characteristics of graduates from the health and pharmacy field of study who, once again, were widely recruited from the early stages of the health emergency. Thus, as to bear in mind such peculiarities, a specific study was carried out on the main employment characteristics of graduates, who were divided into two different groups. On the one hand, those employed who entered the labour market after graduation but before the pandemic emergency. On the other, those who began working during the emergency phase. Apart from graduates in health and pharmacy, the analyses excluded those who continued the work initiated before obtaining their degree due to the peculiarities of their occupational characteristics.[10]

With reference to the type of work, some interesting differences can be noted. In fact, compared to those who started working before the Covid-19 pandemic, 2019 graduates who entered the labour market after the outbreak of the pandemic experienced a decrease in the number of employees, both with permanent contracts and with training contracts. At the same time, there has been an increase in non-standard jobs.

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[10] The start of the pandemic emergency was conventionally set for March 1, 2020. The two groups under analysis were therefore identified on the basis of the months between graduation in 2019 and the start of the first job started after graduation.

Figure 5 - 2007-2019 graduates employed one year after graduation: type of work by degree type. Survey years 2008-2020 (percentage values)

First-Level

Year	self-employment	permanent contract	non-standard contract
2020	13.1	26.9	40.1
2019	13.8	25.6	38.8
2018	13.7	24.5	39.9
2017	12.9	23.5	38.1
2016	14.2	29.1	33.2
2015	15.4	27.7	31.3
2014	14.7	24.1	29.8
2013	14.4	26.5	27.2
2012	12.1	28.9	27.2
2011	10.9	31.3	27.7
2010	11.3	34.5	27.3
2009	9.9	39.2	25.0
2008	9.4	41.8	23.9

Second-Level

Year	self-employment	permanent contract	non-standard contract
2020	13.7	23.4	35.6
2019	11.5	25.8	33.6
2018	10.9	24.6	35.8
2017	10.5	24.0	34.4
2016	11.7	31.0	28.3
2015	11.5	26.6	30.8
2014	11.2	22.4	27.9
2013	11.0	23.3	26.2
2012	9.3	23.7	26.4
2011	9.2	24.1	25.7
2010	9.1	24.6	27.1
2009	8.9	28.4	25.5
2008	8.5	31.5	21.3

Two-year master

Year	self-employment	permanent contract	non-standard contract
2020	8.1	28.1	33.6
2019	7.8	29.5	31.9
2018	7.4	27.4	35.3
2017	7.3	26.9	34.3
2016	8.9	33.7	27.3
2015	9.3	28.8	28.3
2014	8.8	25.2	24.9
2013	9.3	25.7	23.5
2012	7.8	26.3	22.5
2011	7.6	26.2	22.8
2010	8.1	27.0	22.8
2009	7.6	30.7	21.8
2008	6.4	33.9	21.1

Single-cycle second-level

Year	self-employment	permanent contract	non-standard contract
2020	27.5	11.8	40.7
2019	22.7	14.4	38.5
2018	23.6	14.5	36.7
2017	22.2	13.7	33.3
2016	25.3	18.6	27.6
2015	25.7	19.0	26.1
2014	25.6	12.0	24.8
2013	22.7	12.6	23.0
2012	21.3	13.5	23.1
2011	21.0	15.5	22.1
2010	20.2	15.1	23.3
2009	20.1	18.2	23.5
2008	20.2	17.7	22.5

Legend:
- self-employment
- permanent contract
- training contract
- non-standard contract
- research grant
- collaboration/consultancy
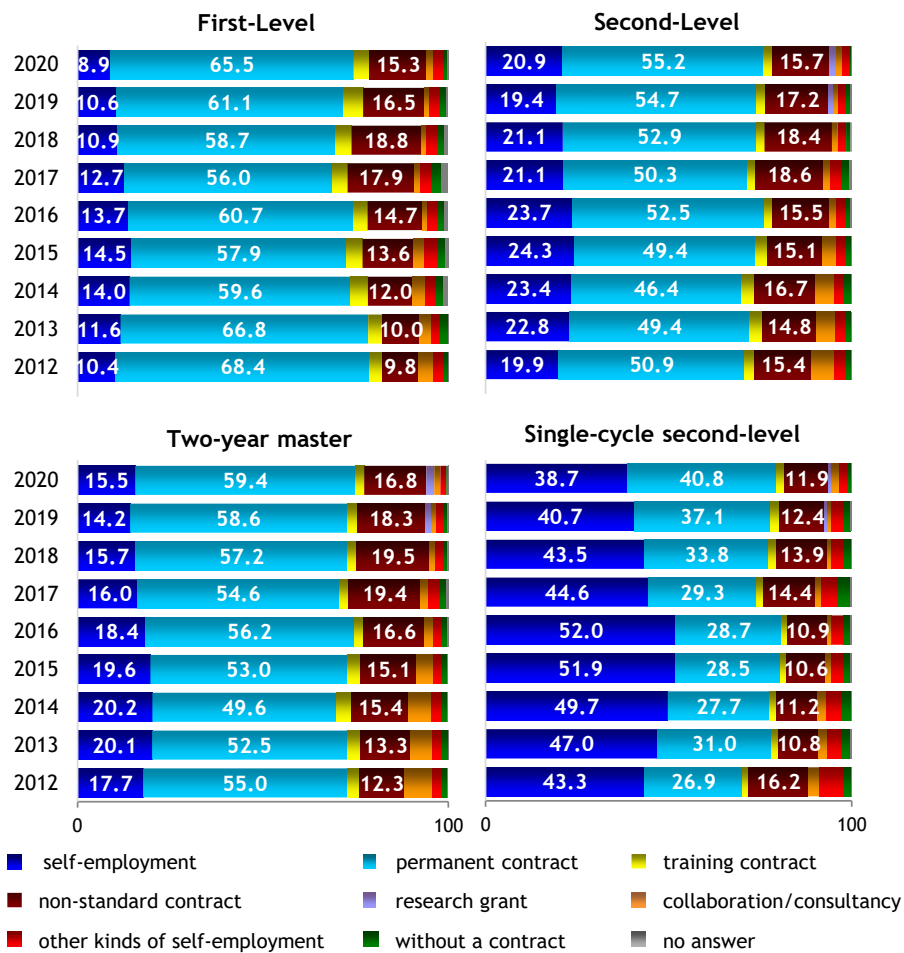- other kinds of self-employment
- without a contract
- no answer

Note: as for the first-level, only graduates not enrolled in another degree course were considered. Until the 2018 cohort, 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.

Extending the period of observation beyond the first year after graduation allows a more complete assessment of the characteristics of the type of work. Three years after graduation, 9.6% of first-level graduates and 16.3% of second-level graduates were self-employed. This figure was 12.4% among two-year masters and 28.8% among single-cycle second-level graduates. Permanent employment contracts concern 50.5% of first-level graduates and 44.5% of second-level graduates. Such a value rises to 49.0% for two-year masters and falls to 30.1% for single-cycle second-level graduates, for the reasons previously mentioned. Still three years after graduation, non-standard work is widespread, involving 21.7% of first-level graduates and 22.5% of second-level graduates (21.9% for two-year masters; 24.0% for single-cycle second-level graduates).

With reference to the 2015 graduates, five years after graduation, self-employment stands at 8.9% among first-level graduates and 20.9% among second-level graduates. The different spread of self-employment between the two populations that coexist in the group of second-level graduates is further accentuated by extending the period of observation to the first five years after graduation. As a result, the values are 15.5% among two-year masters and 38.7% for single-cycle second-level graduates (Figure 6).

Figure 6 - 2007-2015 graduates employed five years after graduation: type of work by degree type. Survey years 2012-2020 (percentage values)

First-Level

Year	self-employment	permanent contract	non-standard contract
2020	8.9	65.5	15.3
2019	10.6	61.1	16.5
2018	10.9	58.7	18.8
2017	12.7	56.0	17.9
2016	13.7	60.7	14.7
2015	14.5	57.9	13.6
2014	14.0	59.6	12.0
2013	11.6	66.8	10.0
2012	10.4	68.4	9.8

Second-Level

Year	self-employment	permanent contract	non-standard contract
2020	20.9	55.2	15.7
2019	19.4	54.7	17.2
2018	21.1	52.9	18.4
2017	21.1	50.3	18.6
2016	23.7	52.5	15.5
2015	24.3	49.4	15.1
2014	23.4	46.4	16.7
2013	22.8	49.4	14.8
2012	19.9	50.9	15.4

Two-year master

Year	self-employment	permanent contract	non-standard contract
2020	15.5	59.4	16.8
2019	14.2	58.6	18.3
2018	15.7	57.2	19.5
2017	16.0	54.6	19.4
2016	18.4	56.2	16.6
2015	19.6	53.0	15.1
2014	20.2	49.6	15.4
2013	20.1	52.5	13.3
2012	17.7	55.0	12.3

Single-cycle second-level

Year	self-employment	permanent contract	non-standard contract
2020	38.7	40.8	11.9
2019	40.7	37.1	12.4
2018	43.5	33.8	13.9
2017	44.6	29.3	14.4
2016	52.0	28.7	10.9
2015	51.9	28.5	10.6
2014	49.7	27.7	11.2
2013	47.0	31.0	10.8
2012	43.3	26.9	16.2

Legend:
- self-employment
- permanent contract
- training contract
- non-standard contract
- research grant
- collaboration/consultancy
- other kinds of self-employment
- without a contract
- no answer

Note: as for the first-level, only graduates not enrolled in another degree course were 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 share of those hired with a permanent contract exceeds half of the employed and reaches 65.5% among first-level graduates and 55.2% among second-level graduates. The latter value rises further to 59.4% among two-year masters and falls to 40.8% among single-cycle second-level graduates, due to the greater diffusion of self-employment among the latter. 15.3% of first-level graduates and 15.7% of second-level graduates are employed with a non-standard contract (16.8% and 11.9%, respectively, for two-year masters and single-cycle second-level graduates). All other forms of employment are decidedly limited, with percentages always below 5.0%. An increase in permanent employment contracts is recorded compared to the 2019 survey (+4.4 points for first-level graduates and +0.5 points for second-level graduates). Non-standard employment is down 1.2 percentage points for first-level graduates and 1.5 points for second-level graduates. Self-employment is also decreasing among first-level graduates (-1.7 points) while it is increasing among second-level graduates (+1.5 points).

3.1. *Smart working* and other forms to work remotely

Where feasible, the sudden emergence of the Covid-19 pandemic made it inevitably necessary to rely on the so called 'smart working',[11] an organisational method that has enabled many companies to provide continuity of work that would otherwise have been impossible, especially during the *lockdown*. Moreover, 'smart working' (more broadly in the form of home working) has also been widely used once the *lockdown* was ended, so as to contain the spread of the virus within the workplace. For this very reason, starting with Law Decree no. 6/2020, the Italian Government has strongly encouraged its use, for all those activities that can be carried out remotely, even without a prior individual agreement between employee and employer. It is actually a form of work organisation that, together with 'telelavoro', was introduced in Italy some time ago, but which had not previously been particularly valued by Italian companies. In the last year, however, for the reasons mentioned above, there has been an exponential increase in the number of remote workers, including those in the public administration, which has in fact been the first economic operator to have to cope with this different way of performing work, partly because of the provision of certain essential public services.

The 2020 survey therefore explored the issue of 'smart working' and, more commonly, remote working, which is widespread among graduates. Altogether, it involves 19.8% of first-level graduates and 37.0% of second-level graduates employed one year after graduation (43.7% of two-year masters, 20.5% of single-cycle second-level graduates). These values are firmly higher than those recorded in the 2019 survey, when they were 3.1% for first-level graduates and 4.3% for second-level graduates one year after graduation.

For the ease of reading, we will hereinafter refer to 'smart working' as employed or self-employed activities carried out remotely. Here we will limit ourselves to noting that 'telelavoro' is definitely less widespread. In fact, it overall concerns 1.4% of first-level graduates and 3.0% of second-level graduates. By contrast, there is a greater use of 'smart working' (10.3% and 19.2% respectively) or, for self-employed activities, remote working (8.1% and 14.8% respectively).

But, how about the features of the type of work performed by 'smart workers'? They are more likely to work in intellectual and highly specialised professions, as well as in executive jobs, and less likely to work in technical jobs. They work more often in the private sector, and less frequently in the public and non-profit sectors. As might be expected, they are employed relatively less in health care and commerce. They work more frequently in IT, professional consultancy, communication, credit and insurance, and education and research. In terms of type of work, 'smart working' employees are most likely to have a permanent contract of employment. Self-employed remote work is less common. These results are generally confirmed for both first and second-level graduates. Moreover, the trends are confirmed both at one and five years after graduation.
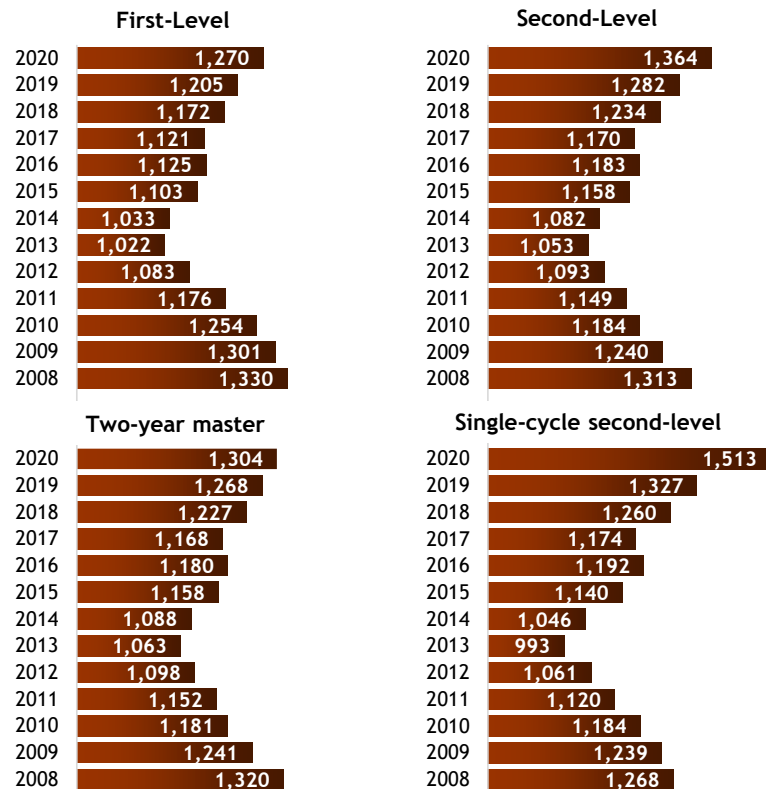
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[11] With reference to Italian legislation (Law no. 81/2017), 'smart working' or 'lavoro agile' refers to an employee-employer agreement according which working activities are performed partly on company premises and partly without a fixed location, within the limits of the maximum daily and weekly working time deriving from the law and national collective agreements. On the other hand, the so called 'telelavoro' (remote working) has been active in our Country for longer and has been differentially regulated between the public and private sectors.

4. Salaries

On average, the 2020 net monthly salary one year after graduation is equal to €1,270 for first-level graduates and €1,364 for second-level graduates; there are differences among the salaries received by two-year masters, equal to an average of €1,304 net per month, and those of single-cycle second-level graduates, which amount to €1,513 (Figure 7). Generally, with regard to salary, there was an increase over the previous survey: +5.4% for first-level graduates and +6.4% for second-level graduates. This increase is part of a positive trend recorded in the last few years.

As discussed above, the pandemic crisis thus does not seem to have particularly affected the characteristics of the work performed by graduates. However, it should be stressed that this is the effect of a differentiated trend between those who entered the labour market before and after the outbreak of the Covid-19 pandemic. In addition, the overall result for 2020 is affected by the strong weight of graduates in health and pharmacy among the employed at one year. In response, as in the case of the type of work, a specific study was carried out to analyse the different salary levels of graduates, excluding those in health and pharmacy and those continuing a job that began before they graduated. On such a graduate subset, the positive picture of salaries is confirmed for 2020. Nevertheless, that is the result of the higher wages received by those who entered the labour market before the pandemic and, at the same time, the lower wage levels of those who started working after its onset. The comparison between the two groups shows that, in the latter, wages are, on average, 6.3% lower for first-level graduates and 4.7% lower for second-level graduates. Moreover, for those who started working after the pandemic crisis began, the spread of part-time work increased (+5.2 and +5.8 percentage points respectively compared to those who entered the labour market before the pandemic).

Figure 7 - 2007-2019 graduates employed one year after graduation: net monthly earnings by degree type. Survey years 2008-2020 (values revalued according to ISTAT consumer price indices; average values in euros)

First-Level

Year	Value
2020	1,270
2019	1,205
2018	1,172
2017	1,121
2016	1,125
2015	1,103
2014	1,033
2013	1,022
2012	1,083
2011	1,176
2010	1,254
2009	1,301
2008	1,330

Second-Level

Year	Value
2020	1,364
2019	1,282
2018	1,234
2017	1,170
2016	1,183
2015	1,158
2014	1,082
2013	1,053
2012	1,093
2011	1,149
2010	1,184
2009	1,240
2008	1,313

Two-year master

Year	Value
2020	1,304
2019	1,268
2018	1,227
2017	1,168
2016	1,180
2015	1,158
2014	1,088
2013	1,063
2012	1,098
2011	1,152
2010	1,181
2009	1,241
2008	1,320

Single-cycle second-level

Year	Value
2020	1,513
2019	1,327
2018	1,260
2017	1,174
2016	1,192
2015	1,140
2014	1,046
2013	993
2012	1,061
2011	1,120
2010	1,184
2009	1,239
2008	1,268

Note: as for the first-level, only graduates not enrolled in another degree course were considered. Until the 2018 cohort, second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

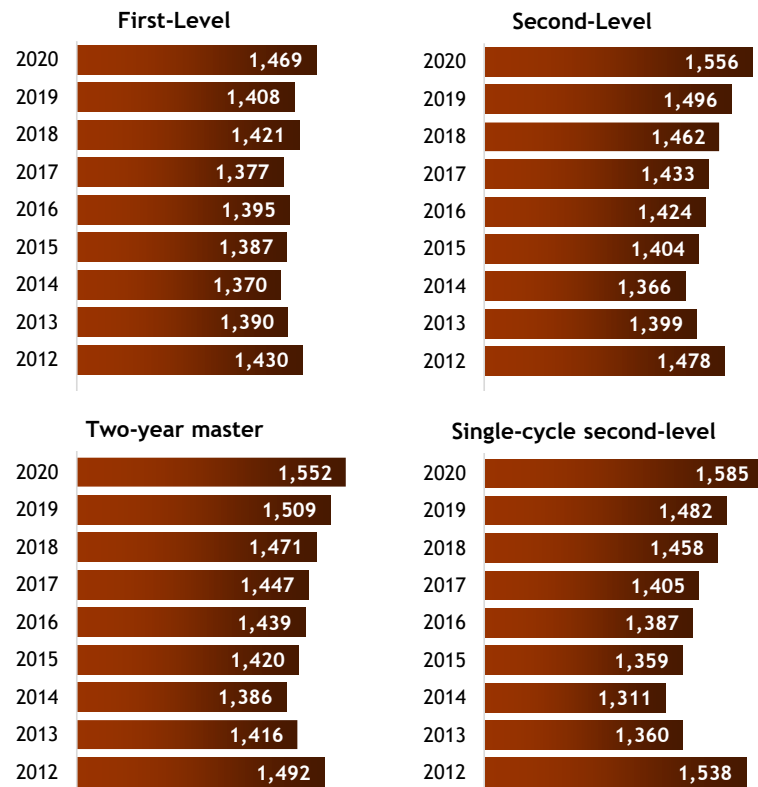Source: AlmaLaurea, Survey on the Occupational Condition of Graduates.

Three years after graduation, the net monthly salary reaches €1,389 for first-level graduates and €1,433 for second-level graduates; on a more detailed basis, it is €1,429 for two-year masters and €1,447 for single-cycle second-level graduates.

Five years after graduation, the net monthly salary is €1,469 for first-level graduates and €1,556 for second-level graduates. If we further differentiate second-level graduates by degree type, we can see that the salaries received are on average equal to €1,552 for two-year masters and €1,585 for single-cycle second-level graduates (Figure 8). Even five years after graduation, there was an increase in salaries compared to the same survey of last year; that is, +4.3% for first-level graduates and +4.0% for second-level graduates. Such increases are part of a context in which there have been several years of increasing salaries.

Once more, the impact of the pandemic on the employment characteristics of five-year graduates seems to be much more limited.

The wage trends described above are confirmed even considering the share of part-time workers.

Figure 8 - 2007-2015 graduates employed five years after graduation: net monthly earnings by degree type. Survey years 2012-2020 (values revalued according to ISTAT consumer price indices; average values in euros)

First-Level

Year	Value
2020	1,469
2019	1,408
2018	1,421
2017	1,377
2016	1,395
2015	1,387
2014	1,370
2013	1,390
2012	1,430

Second-Level

Year	Value
2020	1,556
2019	1,496
2018	1,462
2017	1,433
2016	1,424
2015	1,404
2014	1,366
2013	1,399
2012	1,478

Two-year master

Year	Value
2020	1,552
2019	1,509
2018	1,471
2017	1,447
2016	1,439
2015	1,420
2014	1,386
2013	1,416
2012	1,492

Single-cycle second-level

Year	Value
2020	1,585
2019	1,482
2018	1,458
2017	1,405
2016	1,387
2015	1,359
2014	1,311
2013	1,360
2012	1,538

Note: as for the first-level, only graduates not enrolled in another degree course were 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.

4.1. An additional salary insight. The results of a linear regression model

A linear regression model was used to analyse the multiple factors affecting graduates' net monthly earnings. The approach followed is similar to that described in section 1.1 for the assessment of the probability of being employed, although with some peculiarities related to the different phenomenon under investigation. The analysis considered the 2019 graduates – first-level graduates, who did not continue their education by enrolling in a course of study, and second-level graduates - contacted one year after obtaining their degree.[12] The analysis jointly considers factors related to gender and university degree (degree type, field of study). Given its descriptive purpose, for a more detailed analysis it was decided to also consider some characteristics of the work carried out, which are closely linked to graduates' earnings (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). These are concomitant factors, which have been included for merely descriptive reasons.[13]

The model shown in Table 2 spotted strong differentiations by degree type, which were already highlighted by the descriptive analyses previously discussed. All else being equal, compared to a first-level degree, obtaining a second-level degree allows on average an estimated monthly net bonus payment of €161. All other things being equal, the field of study also has a decisive effect on the pay differentials of recent graduates. Compared to graduates in humanities and literature, on average graduates from health and pharmacy (+€302 net per month), information and communication technologies ICTs (+€225), engineering and engineering trades (+€178) and economics (+€135) earn significantly higher salaries. On the other hand, graduates from architecture and construction (-€50 net per month), psychology (-€46) and agriculture, forestry and veterinary (-€37) are at a greater disadvantage in terms of salary. The traditional gender differences is noticeable; in fact, the model estimates that, all else being equal, men earn a net average of €89 more per month one year after graduation. Pay differences are also found in geographical terms: compared to those employed in the South, those working in the North earn on average a net €109 more per month, while those working in the Centre earn €53 more.

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[12] As with the in-depth study of the probability of being employed, the model does not include those who were working at the time of graduation and those living abroad. In addition, graduates in occupations that are part of the armed forces are excluded from the analysis due to their particular training and employment background.

[13] As shown in Table 2, almost all the parameters present a significance at 1%. Factors that were considered but found not to be significant include aspects such as the geographic area of residence and that of the university, the degree completion time and the age at graduation, exam marks, geographic mobility for study purposes, willingness to travel for business, knowledge of IT tools, as well as the job expectations sought related to many different variables. That is to say, relations with colleagues in the workplace, independence and autonomy, involvement and participation in work and decision-making processes, earning prospects, coherence with the studies completed, free time, workplace (i.e. location and relative physical characteristics), acquisition of professional skills, meeting one's cultural interests, flexibility of working hours, career opportunities, social utility of the job and prestige. In view to the low level of information provided, aspects relating to the family of origin (i.e. parents' qualifications, social class), the intention declared at graduation with regard to continuing studies, the job expectations sought in relation to job stability, work experience and internships, study experiences abroad during university studies, as well as some factors relating to the work performed (i.e. coordination of work carried out by other people and effectiveness of the qualification) were excluded from the model.

Table 2 - 2019 first and second-level graduates surveyed one year after graduation: linear regression model for assessing net monthly earnings. Survey year 2020

	b	S.E.
Gender (female=0)		
male	89.068	4.512
Degree type (First-Level=0)		
Second-Level	161.440	5.431
Field of study (Humanities and literature=0)		
Agriculture, forestry and veterinary**	-36.746	18.838
Architecture and construction	-49.828	16.637
Arts and design***	16.899	20.761
Economics	135.307	15.085
Law***	24.389	17.947
Information and communication technologies (ICTs)	224.902	21.405
Engineering and engineering trades	178.080	15.424
Education	93.955	15.405
Foreign languages	43.145	16.382
Health and pharmacy	302.166	14.805
Politics, social sciences and communications	65.223	16.461
Psychology*	-45.539	21.098
Natural sciences, mathematics, physics and statistics	58.236	15.629
Sports sciences and physical education***	44.267	26.986
Geographic area of work (South=0)		
North	108.723	5.276
Centre	53.223	6.276
Abroad	444.225	11.671
Full time/part-time (part-time=0)		
full time	401.100	5.659
Type of work (non-standard contract=0)		
self-employment	131.538	6.975
permanent contract	55.087	6.106
training contract	-52.096	6.782
research grant	-133.423	18.125
collaboration/consultancy	-61.241	12.405
other kinds of self-employment	-203.146	11.087
without a contract	-414.830	16.249
Company sector (not-for-profit=0)		
public	266.257	12.772
private**	21.351	11.942
Company branch (social and personal, recreational and cultural services=0)		
agriculture	67.343	23.127
engineering industries and precision engineering industries	84.920	14.136
building industry	-43.700	15.296
chemistry/energy	86.146	13.694
manufacturing industry	80.922	14.017
commerce***	-12.885	11.114
cedit and insurance	182.690	14.669
transport, advertising and communications	36.933	14.054
consulting**	-18.988	11.450
computer science	53.801	13.914
other services for companies	48.233	16.331
public administration, armed forces***	-15.641	21.578
education and research	-178.389	11.763
healthcare	243.312	10.021
Profession (other professions=0)		
entrepreneurs, legislators or intellectual, scientific and highly spec. professions	127.317	5.317
Constant	452.029	17.926

Note: R-squared = 0.437 (adjusted R-squared = 0.437), N=40,453

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

Where not explicitly stated, parameters significant at 1% (p<0.01).

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

But it is above all among graduates working abroad that the pay advantage is considerably marked (almost net monthly €450 more than those working in the South). Certainly, the different cost of living should also be here considered, especially when comparing with those who move to work abroad, since this element has an impact on wages, as also highlighted in previous studies conducted on AlmaLaurea data.

Analysing the specific job patterns, it is interesting to notice, all other things being equal, the differences in wages according to the spread of full-time and part-time activities. In particular, the model estimates that employed people working full-time earn on average about a net monthly €400 more than those working part-time.

Equally important differences in pay are also estimated in terms of contracts: compared to graduates employed on non-standard contracts (mainly fixed-term contracts), those who are self-employed receive over €130 net per month more. Graduates with a permanent contract, on the other hand, receive €55 net per month more. On the contrary, pay differentials show negative values especially for those types of work not regulated by any contractual form, semi-subordinate (see Table 2 "other kinds of self-employment") and those supported by a research grant. In fact, the pay disadvantage compared to non-standard contracts ranges, all other things being equal, between -€415 and -€133 net per month. Those who work as semi-subordinate workers or with a training contract also earn less than workers employed with non-standard contracts, but in this case the penalty is less marked (-€61 and -€52 respectively). The findings show that, in our Country, precarious fixed-term contracts are not matched by higher wages.

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 corresponds to an estimated salary advantage of €266, while the private sector corresponds to a greater economic value of €21. The branches of economic activity that correspond to greater wage differentials than the social and personal, recreational and cultural services branch are, above all, the healthcare[14] (+€243) and the credit (+€183); the model also estimates a wage advantage for the chemical and energy industries (+€86), engineering industries and precision engineering industries (+€85) and manufacturing (+€81). On the other hand, graduates working in education and research receive lower wages: the wage penalty is -€178 compared with the social and personal, recreational and cultural services branch.

Finally, the profession held by graduates has a positive effect on their earnings. All else being equal, graduates in high professions such as entrepreneurs, legislators or intellectual, scientific and highly specialised professions receive +€127 than graduates in other professions.[15]

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[14] Although the *ceteris paribus* approach used in the model, its result is likely to be influenced by the pandemic context of 2020.
[15] 'Other professions' include technical jobs, executive office workers, skilled trades and services and the remaining non-classified occupations (ISTAT, CP2011).

5. Effectiveness of the degree on the job

Graduation effectiveness is a subjective measure of coherence between studies completed and jobs performed, as it is based on evaluations expressed by employed graduates. Together with normative and statistical measures, it is a way of identifying and analysing situations of *mismatch*, whether horizontal or vertical. As regards graduates' statements on the use of the skills acquired during their studies, as well as on the formal or substantive necessity of the qualification for employment, it is proved that the qualification is "very effective or effective" for about two-thirds of employed graduates at one year: 62.8% for first-level graduates and 66.0% for second-level graduates. Given the different nature of the courses of study and their relative employment opportunities, it is obvious that there are remarkable differences among two-year masters, among whom the degree is "very effective or effective" for 58.3% of those employed, and single-cycle second-level graduates, whose effectiveness value rises to 84.8% (Figure 9).

Figure 9 - 2007-2019 graduates employed one year after graduation: degree effectiveness by degree type. Survey years 2008-2020 (percentage values)
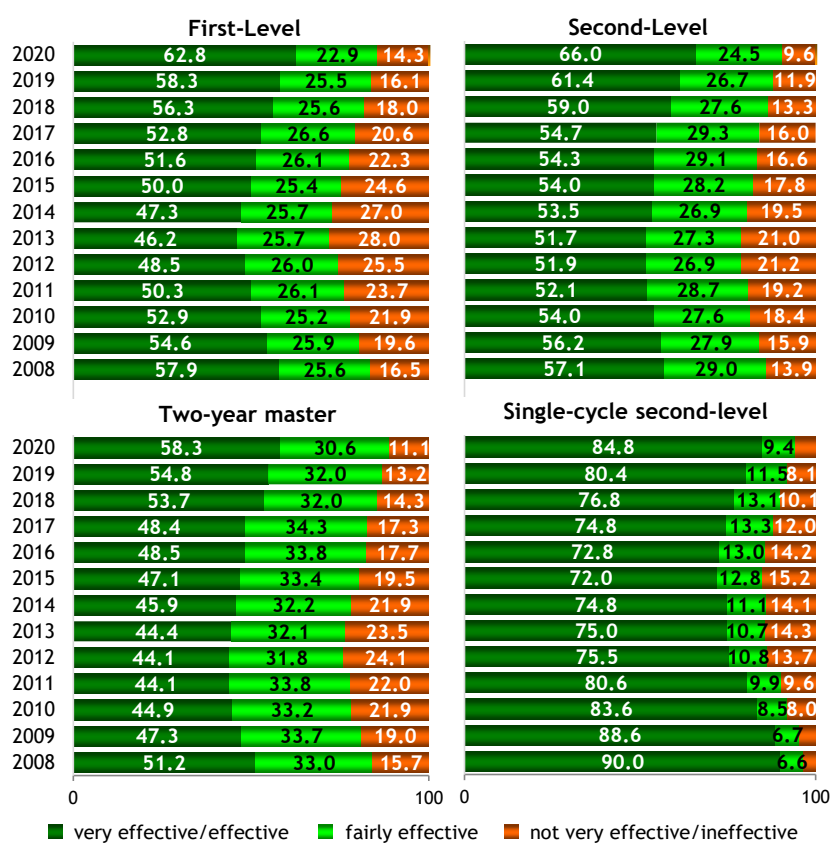
Note: as for the first-level, only graduates not enrolled in another degree course were considered. Until the 2018 cohort, second-level graduates also include graduates from the pre-reform course of study in Primary Education Sciences.

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

Since the previous survey, an increase in the levels of effectiveness (+4.5 percentage points for first-level graduates and +4.6 points for second-level graduates) has been registered. As with the other job features, the positive result for degree effectiveness is the combined effect of differing trends among those who entered the labour market before and after the emergence of the pandemic phase. It should also be stressed that, among those employed in 2020, graduates from health and pharmacy are also important, as they are characterised by higher levels of effectiveness from the first year after graduation. If we therefore exclude from the analysis graduates in this field of study, as well as graduates who had already entered the labour market before graduation, and take into account the period of access to the labour market by graduates, some interesting trends emerge. Among those who started working after the outbreak of the pandemic, there is a decline in the effectiveness of the degree compared with those who had entered the labour market earlier: -4.5 percentage points for first-level graduates and -1.0 points for second-level graduates.
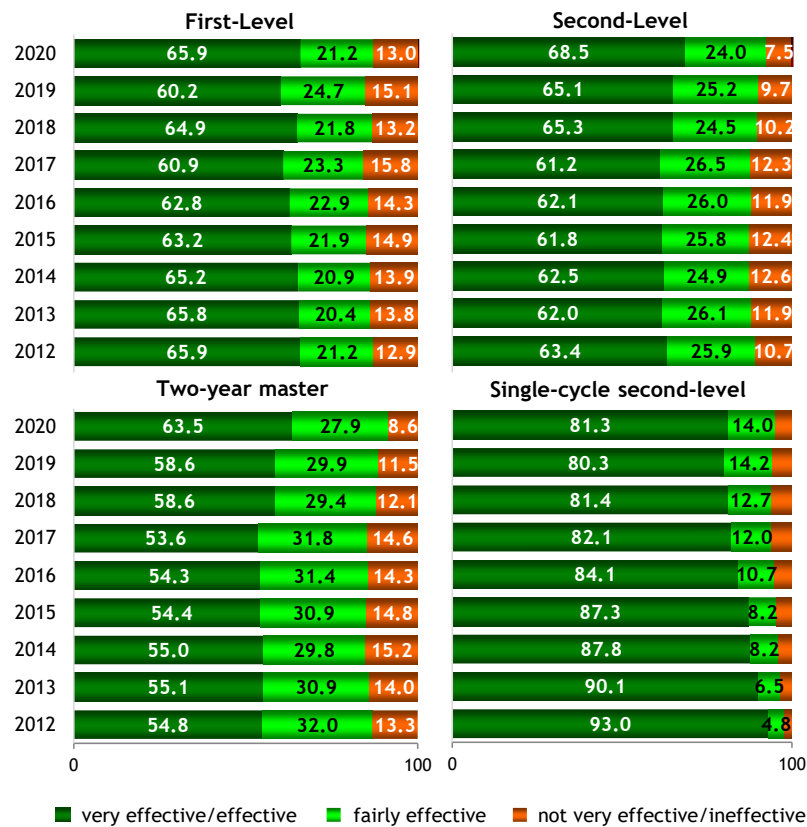
The pandemic therefore seems to have interrupted the positive trend observed in recent years. It will be interesting to monitor what happens in the forthcoming months, also considering the policy interventions implemented on several issues.

As discussed before, as time goes by, the features of the job performed improve including the effectiveness of the degree. At three years, in fact, the degree is considered "very effective or effective" for 66.3% of first-level graduates and 64.9% of second-level graduates. In greater detail, it is 59.7% among two-year masters and increases to 80.6% among single-cycle second-level graduates.

At five years these quotas reach, 65.9% and 68.5% of first and second-level employees respectively. If the effectiveness of the degree for graduates of the two-year masters degree stops at 63.5%, for single-cycle second-level degrees the levels even reach 81.3% (Figure 10). Even for graduates five years after graduation, 2020 shows an improvement in the levels of effectiveness. Indeed, compared to last year, there is an increase of 5.7 and 3.4 percentage points respectively for both first and second-level graduates.

The picture here outlined is largely confirmed if we separately consider the two components of effectiveness. That is to say, in the job performed, the use of the skills acquired at university and the formal or substantive requirement of a degree for the practice of one's own type of work.

Figure 10 - 2007-2015 graduates employed five years after graduation: degree effectiveness by degree type. Survey years 2012-2020 (percentage values)

First-Level

Year	very effective/effective	fairly effective	not very effective/ineffective
2020	65.9	21.2	13.0
2019	60.2	24.7	15.1
2018	64.9	21.8	13.2
2017	60.9	23.3	15.8
2016	62.8	22.9	14.3
2015	63.2	21.9	14.9
2014	65.2	20.9	13.9
2013	65.8	20.4	13.8
2012	65.9	21.2	12.9

Second-Level

Year	very effective/effective	fairly effective	not very effective/ineffective
2020	68.5	24.0	7.5
2019	65.1	25.2	9.7
2018	65.3	24.5	10.2
2017	61.2	26.5	12.3
2016	62.1	26.0	11.9
2015	61.8	25.8	12.4
2014	62.5	24.9	12.6
2013	62.0	26.1	11.9
2012	63.4	25.9	10.7

Two-year master

Year	very effective/effective	fairly effective	not very effective/ineffective
2020	63.5	27.9	8.6
2019	58.6	29.9	11.5
2018	58.6	29.4	12.1
2017	53.6	31.8	14.6
2016	54.3	31.4	14.3
2015	54.4	30.9	14.8
2014	55.0	29.8	15.2
2013	55.1	30.9	14.0
2012	54.8	32.0	13.3

Single-cycle second-level

Year	very effective/effective	fairly effective	not very effective/ineffective
2020	81.3	14.0	
2019	80.3	14.2	
2018	81.4	12.7	
2017	82.1	12.0	
2016	84.1	10.7	
2015	87.3	8.2	
2014	87.8	8.2	
2013	90.1	6.5	
2012	93.0	4.8	

■ very effective/effective ■ fairly effective ■ not very effective/ineffective

Note: as for the first-level, only graduates not enrolled in another degree course were 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.

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