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Highly Skilled Graduates in the
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**CHARACTERISTICS AND PERSPECTIVES
OF HIGHLY SKILLED GRADUATES
IN THE ITALIAN LABOUR MARKET**

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Key words: Higher Education, Graduates, Employability, Macro-areas.

Abstract

The central aim of this paper is to examine the relationships and implications of the education-employment nexus for recent university graduates in Italy by analysing the main elements that influence college graduates' employment probabilities three years after graduation. In addition, it provides a comparison among Italian macro-areas regarding graduates' region of residence in 2010.

In this sample, continuous work experience during undergraduate studies, further postgraduate studies, older graduation ages and being married or divorced are characteristics that increase the probability of being employed compared to being unemployed three years after graduation.

We used micro-data from a nation-wide survey carried out by the Italian Institute of Statistics (ISTAT) in 2011 on a representative sample of 33,696 graduates belonging to the 2007 cohort.

The results confirmed the existence of significant differences in graduates' employment among Italian macro-areas. Graduates who were employed in the South in 2010 have shown a strong marked profile that is unfavorable to women and is distinguished by the oldest ages of graduates at the time of graduation and in post-graduation pursuits.

**CHARAKTERYSTYKA I PERSPEKTYWY ZATRUDNIENIA WYSOKO
WYKWALIFIKOWANYCH ABSOLWENTÓW WYŻSZYCH UCZELNI
NA WŁOSKIM RYNKU PRACY**

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Słowa kluczowe: szkolnictwo wyższe, absolwenci, szanse znalezienia zatrudnienia, makro-obszary.

¹ The paper represents a joint research venture.

Abstrakt

Głównym celem artykułu jest określenie zależności między wykształceniem a zatrudnieniem oraz ich implikacji dla młodych absolwentów uczelni wyższych we Włoszech przez analizę głównych czynników wpływających na szanse zatrudnienia absolwentów w okresie trzech lat po ukończeniu studiów. Porównano również włoskie makroobszary z uwzględnieniem regionu zamieszkania absolwentów w 2010 r.

W badanej próbie doświadczenie zawodowe wyniesione z praktyk i stażów podczas studiów pierwszego stopnia, ukończenie studiów podyplomowych, bardziej zaawansowany wiek w momencie ukończenia studiów oraz pozostawanie w związku małżeńskim lub bycie osobą rozwiedzioną zwiększają szanse zatrudnienia w porównaniu z pozostawaniem bezrobotnym trzy lata po ukończeniu studiów.

W pracy wykorzystano mikrodane z ogólnonarodowego badania przeprowadzonego przez Włoski Instytut Statystyki (ISTAT) w 2011 r. na reprezentatywnej próbie 33 696 absolwentów, którzy ukończyli studia w 2007 r.

Otrzymane wyniki potwierdziły istnienie istotnych różnic w poziomie zatrudnienia absolwentów między badanymi makroobszarami Włoch. W grupie absolwentów zatrudnionych na południu kraju w 2010 r. stwierdzono wyraźny trend niesprzyjający zatrudnianiu kobiet. Wyróżnikiem profilu tej grupy był także najstarszy wiek absolwentów w momencie ukończenia studiów oraz podczas późniejszych poszukiwań pracy.

Introduction

With the economic crisis of 2008, recent university graduates began to worry about the impact of the crisis, and they currently seem to be affected in different ways. Particularly in Italy, the education system is rigid, and this situation has made the labour market increasingly flexible. This rigid system is due principally to the fact that the education system is not able to reduce the gap between experience and degree obtainment.

Although the percentage of workers in Italy having accomplished either the first or second stage of tertiary education increased from 12% to 19% between 1999 and 2012 which represents a figure 1.7 times higher in absolute terms (Eurostat 2013), specific policies that are useful to valorising the skills and competences required by the labour market have not been implemented. The lack of policies has resulted in inadequate solutions to the growing unemployment such as temporary employment and unstable jobs.

The central aim of this paper is to examine the relationships and implications of the education-employment nexus for graduates in Italy by analysing the main elements that influence college graduates' employment probabilities three years after graduation. In addition, it provides a comparison among Italian macro-areas regarding graduates' region of residence in 2010. The data set is drawn from the Graduates' Vocational Integration Survey conducted by the Italian National Institute of Statistics (ISTAT) in 2011 on a single level of graduates three years after their graduation (in this study, the cohort grad-

uated in 2007). It also allows territorial disaggregation according to graduates; place of residence in 2010.

The paper is organised as follows.

Section 1 provide an introduction. Section 2 outlines some generic indications about the labour market performance of Italian university graduates. Section 3 presents the data set and methodology used for the descriptive and empirical analysis. Section 4 discusses the territorial heterogeneity of graduates; employment across three Italian macro-areas. Section 5 shows an econometric specification of the model and the subsequent findings.

Finally, further steps are discussed in the conclusions.

The literature framework on higher education and employment and regional disparities: some issues

The employability concept has been broadly treated in the economics literature.

Among EU member states, Italy seems to be one of most interesting countries with regard to the employability of university graduates. BIGGERI et al. (2001) considered not only the characteristics of graduates but also the characteristics of universities and course programmes. In fact, they indicated that students that take less time to graduate also take less time to obtain a job, that graduates with previous work experience are more likely to obtain a job and that older graduates seem to be in a disadvantageous situation with relation to younger graduates.

QUINTANO et al. (2004) did not find any effects of gender or of parents' professional status and concluded that the probability of being employed is strongly related to the duration of the university degree programme. POZZOLI (2009) analysed Italian graduates in 1998 and indicated that graduates become less selective and adjust their job search efforts when unemployed, which allows for an increase in the level of information about job opportunities, and especially older and female graduates and those who live in Southern and Central Italy are found to have particularly lower probabilities of obtaining their first jobs. Most recently, CIRIACI (2012) showed that the current Italian university reform is providing a lowering in dropout rates, changing the duration of degrees.

The literature indicates that there are also wide regional differences in graduate employment (CIRIACI 2006, 2005, BRUNELLO et al. 2001) due to the persistence of socio-economic divergences between the central-northern and southern regions (CIRIACI, PALMA 2008, QUATRARO 2009). PARTICULARLY, GALEGO, SARAIVA (2013), in studying the Portuguese case, underlined that

employability is higher for graduates of degree programmes in the south of the country and in the islands. DI PIETRO (2013), analysing the Italian case, indicated that study abroad programmes, which permit students to gain abilities that can overcome difficulties experienced as a result of having disadvantages backgrounds, have a meaningful effect on the likelihood of being employed three years after graduation.

Data and methods

The micro-data used for our analysis of university graduates' employment come from a nation-wide survey conducted by ISTAT in 2011 on a representative sample of 33,696 graduates belonging to the 2007 cohort. The individuals of the sample were questioned three years after graduation about their current labour market status, further qualification activities, job characteristics and career aspirations as well as retrospectively on topics related to their studies and the transition process from university to work.

The data collection took place in two different phases. The first phase surveyed universities regarding their graduates from the year 2007 to obtain the areas from which to extract the sample of graduates to be interviewed. The second phase directly addressed the graduates previously selected in the sample.

The models were computed introducing a set of control variables (both categorical and dummies) regarding: sex (gender of the respondent: 1 = Male; 2 = Female), the age group at the time of degree achievement (21–24, 25–29, 30+), the disciplinary group to which the graduate's course of study belongs (Scientific, Socio-economics and Politics, Humanities, Law, Architecture/Engineering, Medicine), whether the respondent worked before graduation (Work experience = 1; No work experience = 2), marital status (Single = 1; Married/partnered = 2; Other, divorced/widowed = 3), progeny (With children = 1; without children = 2), the graduate's region of residence in 2010 (North = 1; Centre = 2; South = 3), whether the respondent changed residences after graduation (Not-Changing residence = 1; Changing residence = 2), whether the respondent was satisfied with the degree obtained (Satisfied = 1; Not satisfied = 2), whether the respondent achieved postgraduate degrees', such as First or Second Level Master's degree or a not University Master's degree or PhD (With a post-graduate degree = 1; Without a post-graduate degree = 2), and whether the respondent obtained a Bachelor's degree (Laurea triennale = 2) or a degree after a 3-years course of university study (Laurea Specialistica or vecchio ordinamento = 1).

The disciplinary groups, built by following the D.M. 4/10/2000, aggregate single academic sectors in wider fields. The first group encompasses Area 1 to

Area 5 (all Scientific Faculties) and Area 7 (Agricultural Sciences and Veterinary Medicine). The second group encompasses Area 13 (Economic Sciences and Statistics) and 14 (Social and Political Sciences). Areas 10 and 11 belong to the third group (Humanistic sciences), and Area 12 belongs to the fourth group (Law). Group 5 embodies Area 8 (Civil Engineering and Architecture) and Area 9 (Industrial and information Engineering), and the sixth group encompasses Area 6 (Medicine).

Parental background was initially included in the models, but its introduction did not substantially improve the fit of the model, nor did it have a significant impact on the coefficients. Therefore, this variable was omitted from the final specification.

The empirical analysis has been divided into two parts. In the first, the dependent variable (which measures the likelihood of being employed in 2010) is computed as follows:

- 1 = if the respondent was employed in 2010 and
- 2 = if not.

In the second part, employment analyses were disaggregated by the macro-areas of residence to distinguish any statistically significant territorial heterogeneities.

Territorial employment heterogeneity in Italy

Figure 1 gives the evolution of employment rates in Italy since 1977. It shows the decrease in employment from 45.6% in 1980 to 41.9% in 1989, with a rough plateau until 2001 and with cyclical declines and increments during the 1990s. Over the last ten years, the growth in the employment rate was reversed in 2006 (46.9%) due to the economic crisis, losing two percentage points in five years.

How much of the increase registered at the beginning of the millennium reflects an increase in the employment rates of females? The answer is straightforward: since 2000, male employment rates have been almost constant, approximately 61–62%. Instead, women's employment has shown a steadily increasing trend. Consequently, the increase in the employment rate in the period considered reflects, for the most part, an increase in female employment rates.

Regarding geographical macro-areas, Figure 2 shows the employment rates in the North, Centre and South of the country. The plot shows the large heterogeneity of employment across the three Italian macro-areas. Such heterogeneity has always been present (at least since 1977), but has been more marked since the end of the 1980s. The employment rates in the North have

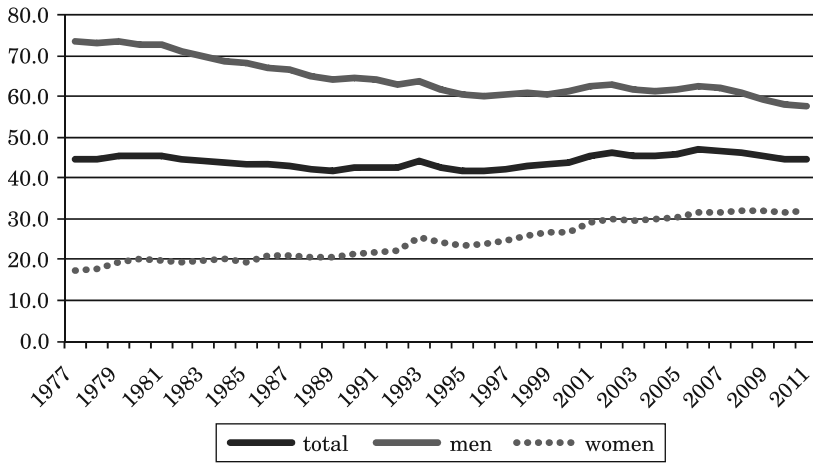


Fig. 1. Italy. Employment rates by gender. Years 1977–2011

Source: The author's own elaboration, Istat.

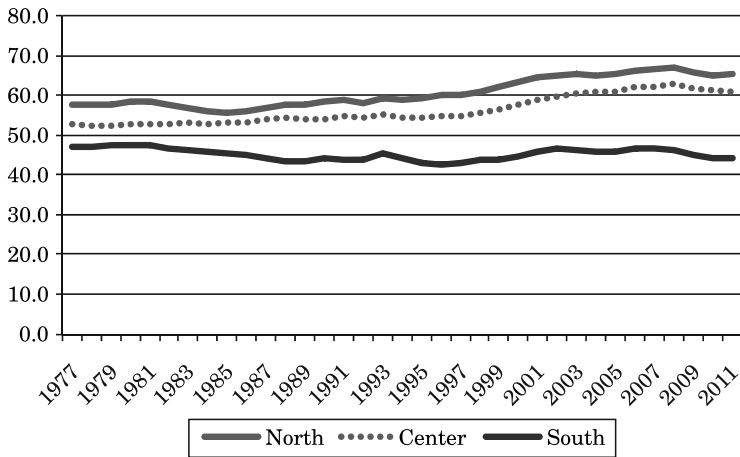


Fig. 2. Italy. Employment rates by Macro-areas. Years: 1977–2011

Source: The authors' own elaboration, Istat.

consistently been the highest: under but near 60% until 1998 and between 62–66% thereafter. The employment trend in the Centre of Italy has been more similar to the one observed in the North, but with slightly lower rates. The distance between the curves confirm a territorial gap in which the employment rates in the South remain the lowest in Italy.

Moving from the Labour Force Survey data to the 2011 University Graduates' Vocational Integration Survey data, Figure 3 presents the regional

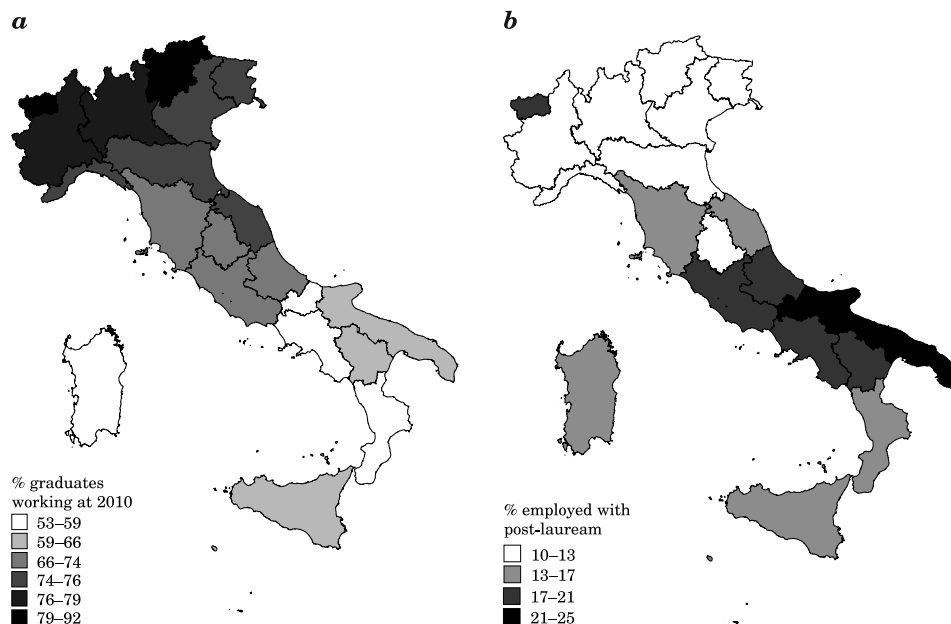


Fig. 3. Italy. Percentage of graduates employed in 2010 (a) and employed in 2010 with post-graduate specialisations (b)

Source: The authors' own elaboration, University Graduates' Vocational Integration Survey, 2011.

allocation of graduates who were employed in 2010. The first part could be considered a proxy of the recent employment distribution of individuals with tertiary education in Italy, read as the percentage of graduates working in 2010 (three years after graduation). There is a clear regional path in which the highest proportion of employed graduates is concentrated in the Aosta Valley, Trentino Alto Adige, Piedmont, Lombardy, Liguria, Emilia-Romagna, Veneto, Friuli-Venezia-Giulia and Marche and the lowest proportion is observed in Central and Southern regions such as Tuscany, Lazio, Umbria, Abruzzo, Apulia, Basilicata, Sicily, Molise, Campania, Calabria and Sardinia.

The second part of the figure is dedicated only to graduates who were employed in 2010 and had obtained a post-graduate qualification (Master's degree, PhD). When analysing the regional distribution of working graduates disaggregated by post-graduate specialisation, no observation exceeded 25%. However, employment seems to be more strongly linked to further qualifications in the South than in the North of the country. Apulia, Molise, Abruzzo, Lazio, Basilicata, Campania (and Aosta Valley) show the highest proportions of graduates employed with post-graduate degrees. There are several possible explanations for this result.

First, graduates residing in the South seem to be encouraged to continually develop their working skills, qualities and experiences to compete in the graduate labour market.

Second, given the lower employment rates in the South, graduates continue their post-graduate educational path while waiting to find a job.

An intermediate group formed by Sicily, Sardinia, Calabria, Tuscany and Marche represents the regions of residence for 15–17% of the sample with post-graduate degrees while in the North (and Umbria) the percentage of graduates with post-graduate degrees reaches approximately 13%.

Employment probabilities and territorial differences

The data analysis was conducted in two stages. In the first, the association of graduates' employment status in 2010 with their socio-demographic profiles was examined using binary logistic regression analyses:

$$\ln \left[\frac{\hat{\pi}}{(1 - \hat{\pi})} \right] = b_0 + b_1X_1 + b_2X_2 \dots + b_kX_k.$$

The binary dependent variable measures employment status (0 = not working; 1 = working) three years after graduation. The variables of gender, age at degree achievement, the degrees' disciplinary group, work experience, marital status, progeny, residence change, satisfaction with degrees, post-graduate qualifications and duration of the degree programmes were included in these regressions to adjust for their potential effects.

These analyses were conducted for the whole sample and were repeated in the subsample of graduates residing in the North, Centre or South of Italy (Table 1).

In the first specification, graduates who were employed in 2010 were less likely to be females ($B = -0.26$; ref.: males), to have a degree in Law or Medicine ($B = -0.56$ and -0.22 , respectively, ref.: scientific) and to live in the South or Centre of Italy ($B = -0.90$ and -0.47 , ref.: North). They were also more likely to have achieved a degree when over 30 years old of age ($B = 0.86$; ref.: 21-24 years old), to have obtained a degree in the Socio-economics, Politics and Architecture/Engineering fields ($B = 0.41$ and 0.53 , ref.: scientific) to have gained some previous work experience ($B = 0.66$, ref.: without), to be married or divorced ($B = 0.49$ and 0.75 , ref.: single) and to have post-graduate qualifications ($B = 0.39$, ref.: without).

The values of the Wald coefficient are useful for sorting the independent variables based on their influence on the dependent variable. In this sense, the

ranking of the top six categories that determine the highest graduate employment probabilities in 2010 are the following: living in the South ($W = 953,40$), accumulating work experience in labour market activities ($W = 610,46$), obtaining a degree at age 30 or older ($W = 302,79$), being married ($W = 192,85$), living in Central Italy ($W = 190,56$) and have a post-graduate degree ($W = 109,37$).

Repeating these analyses in the subgroups disaggregated by the macro-area of residence in 2010 produced some interesting results that highlight the existence of diverse employment results of graduates in the Italian territory.

In Models 2, 3 and 4, the covariate of the age at the time of degree achievement tends to gain importance if graduates reside in the Centre or South of the country when compared to the North. In fact, the likelihood of obtaining a degree when 30 years of age or older is 0.62 in the North, 0.90 in the Centre is and 1.05 in the South. A similar path is observed when examining work experience ($B = 0.47$ N, 0.80 C, 0.75 S) and graduates' satisfaction with degree ($B = 0.08$ N, 0.12 C, 0.21 S).

Instead, a decreasing trend is shown with regard to divorced graduates ($B = 1.14$ N, 0.70 C, 0.54 S), with holding a 3-year degree ($B = 0.26$ N, 0.34 C, 0.21 S) exerting a positive influence. If the attention is focused on negative coefficients, the probabilities of employment for females become even lower for graduates living in the Centre and South ($B = -0.13$ and -0.22) compared to the North ($B = -0.37$). Another interesting outcome concerns progeny; only graduates residing in the Central and Southern regions of Italy had lower working probabilities in 2010 if they did not have children ($B = -0.16$ and -0.13).

The covariate measuring a change in the region of residence is positive only for graduates who were living in the South in 2010, implying a greater mobility for employment – related motives. Graduates who changed their residence between the time of university attendance (before 2007) and 2010 are more likely to be employed in the South ($B = 0.25$) and less likely to live in the North ($B = -0.25$) or Centre ($B = -0.29$).

The Wald classifications for Italian macro-areas Models present some remarkable heterogeneity. For graduates living in Northern Italy, the most important variables influencing employment in 2010 are as follows: work experience gained ($W = 113.84, +$), being married ($W = 82.05, +$), having a Law degree ($W = 80.99, -$) or an Architecture/Engineering degree ($W = 60.65, +$) and, finally, the age at time of graduation ($30+, W = 52.03, +$). For graduates residing in both the Centre and the South, two most influential variables are work experience ($W = 188.28, +, C; W = 314.05, +, S$) and the covariate of being older than 30 years old at the time of graduation ($W = 70.42, +, C; W = 203.12, +, S$). The third and the fourth most influential variables are

Table 1
Italy. Results of the binary logistic regression. Dependent variable: working three years after graduation by graduates' region of residence in 2010

Variables	1			2			3			4						
	working in 2010			working in 2010 (North)			working in 2010 (Centre)			working in 2010 (South)						
	B	Exp (B)	Sig.	B	Wald	Exp (B)	Sig.	B	Wald	Exp (B)	Sig.	B	Wald	Exp (B)	Sig.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
(Male)																
Female	-0.26	94.89	0.77	***	-0.13	9.12	0.88	***	-0.22	13.96	0.80	***	-0.37	73.41	0.69	***
(21-24)																
25-29	0.08	5.57	1.08	***	-0.11	3.89	0.90	**	0.15	4.14	1.16	***	0.30	32.27	1.35	***
30 +	0.86	302.79	2.37	***	0.62	52.03	1.86	***	0.90	70.42	2.46	***	1.05	203.12	2.85	***
(Scientific)																
Socio-economics	0.41	67.31	1.50	***	0.51	37.40	1.66	***	0.73	40.20	2.07	***	0.23	9.22	1.26	***
Politics	-0.06	1.23	0.94		-0.07	0.67		0.93	0.15	1.49	1.17		-0.10	1.54	0.90	
Humanities	-0.56	102.68	0.57	***	-0.81	80.99	0.45	***	-0.32	5.84	0.73	***	-0.39	21.41	0.67	***
Law	0.53	102.94	1.70	***	0.68	60.65	1.97	***	0.88	52.38	2.42	***	0.30	13.43	1.34	***
Arch/eng	-0.22	19.75	0.81	***	-0.39	25.39	0.68	***	-0.05	0.23	0.95		-0.02	0.08	0.98	
Medicine																
(No work experience)																
Work experience	0.66	610.46	1.93	***	0.47	113.84	1.59	***	0.80	188.28	2.22	***	0.75	314.05	2.11	***
(Single)																
Married/partnered	0.49	192.85	1.63	***	0.48	82.05	1.62	***	0.47	40.26	1.61	***	0.47	60.02	1.60	***
Other (divorced, widowed)	0.75	32.03	2.12	***	1.14	18.70	3.12	***	0.70	6.76	2.02	***	0.54	8.04	1.72	***
(With children)																
Without children	-0.08	2.53	0.92		0.06	0.44	1.06		-0.16	2.18	0.85	**	-0.13	2.79	0.87	**
(North)																
Centre	-0.47	190.56	0.62	***												
South	-0.90	953.40	0.41	***												
(Not changing residence)																
Changing residence	-0.09	7.30	0.91	***	-0.25	21.39	0.78	***	-0.29	17.18	0.75	***	0.25	17.57	1.29	***

cont. table 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
(No Degree satisfaction) Degree satisfaction	0.15	27.44	1.17	***	0.08	2.54	1.08		0.12	3.33	1.12	***	0.21	21.49	1.23	***
(No post-graduate degree) With post-graduate degree	0.39	109.37	1.48	**	0.39	31.67	1.47	***	0.53	42.89	1.70	***	0.35	40.56	1.41	***
(+3 year Degree) Bachelor's degree (3 years)	0.24	59.78	1.28	***	0.26	24.82	1.30	***	0.34	24.15	1.41	***	0.21	17.81	1.23	***
Constant	0.42	26.02	1.53	***	0.56	17.97	1.76	***	-0.35	3.69	0.70	***	-0.59	22.01	0.55	***
N			33,696				14,638				7,171				11,887	
Log likelihood			37,453.18				14,650.2				7,833.4				14,421.2	
R-squared Nagelkerke			0.17				0.11				0.18				0.18	

Source: The authors' own elaboration, University Graduates' Vocational Integration Survey, 2011.

diverse, including having an Architecture/Engineering degree ($W = 60.65, +$) and a post-graduate specialisation ($W = 60.65, +$) for graduates living in the Central Region and being a woman ($W = 73.41, -$) and being married ($W = 60.02, +$) for the graduates living in the South.

Conclusion

The present study was designed to determine the effect of several independent variables on the employment probabilities of a cohort (2007) of Italian graduates three years after obtaining a degree. The findings indicate that the most relevant variable that determines graduates' employment is their region of residence in 2010, followed by their work experience gained in the labour market during undergraduate studies and their age group at time of degree achievement.

The statistical analysis of the main employment determinants for university graduates in Italy three years after graduation has revealed the positive and negative impacts of several covariates. Continuous work experience during undergraduate studies, further postgraduate studies, older graduation ages and being married or divorced are characteristics that increase the probability of being employed vs. unemployed three years after graduation.

Conversely, living in the South or Centre of Italy in 2010, being a woman and having studied Law or Medicine decrease this probability.

The results confirmed the existence of significant differences in graduates' employment among Italian macro-areas. Graduates who were employed in the South in 2010 have shown a strong marked profile that is unfavorable to women and is distinguished by the oldest graduates at the time of graduation and in post-graduation pursuits.

Finally, this research was limited in several ways. First, this paper used a convenience sample restricted to the short-run employment outcomes of 2007 graduates cohort in Italy. Even if the dataset were nationally representative, the findings might not be transferable to other cohorts of graduates.

This research highlighted many questions that are in need of further investigation.

Future studies should be conducted to establish how employment probabilities are affected by the role of work experience accumulated in the labour market while studying and whether working skills become more or less relevant for individuals who graduated when older (30+). In addition, future research should concentrate on the investigation of the role played by the Italian University System, considering the quality and geographical position of universities according to data collected with regard their graduates.

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