

Mapping the landscape of online job vacancies

Background report: Italy

Study: Real-time labour market information on skills requirements: Setting up the EU system for online vacancy analysis

Contract: AO/DSL/VKVET-GRUSSO/Real-time_LMI_2/009/16

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Preface

Over the last decades, online job portals have become important features of the job market. The Internet offers a rich source of live and real-time labour market information for almost all of occupations. It can provide insight on job-specific skills required in particular occupations in different regions, combined with information on the characteristics of the job offered – i.e. much more than is available using conventional sources. However, consistent and comparative information on the use of the internet and online job market by job-seekers and employers in Europe is rather scarce.

To tap the potential of online labour market information, Cedefop started to investigate the possibility to develop a system for gathering and analysing data from online job portals in the EU to complement the centre's toolkit of skills intelligence instruments. While this is feasible, drawing meaningful conclusions from these data requires a good understanding of the features of national online job markets. Therefore, Cedefop has mapped the landscape of the online job market in all EU Member States. This publication presents one of the background country reports developed in the project - 'Real-time labour market information on skills requirements: Setting up the EU system for online vacancy analysis' (AO/DSL/VKVET-GRUSSO/Real-time LMI 2/009/16). Its findings will inform the cross country comparison published in the upcoming synthesis report.

The work was undertaken by a consortium of external contractors: CRISP (Milano/IT), Tabulaex (Milano/IT) and IWAK (Frankfurt/DE) and their network of country experts (see annex 1 for detailed list) and closely supervised by Cedefop. It presents authors' analysis of the landscape of the online job portal market in the country using a methodology developed for the purpose of the project.

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List of Abbreviations

CRISP	Centro di ricerca interuniversitario per i servizi di pubblica utilità, University of Milano-Bicocca
CRM	Customer Relation Management
ESCO	European Standard Classification of Occupations
ESS	European Statistical System
EURES	European Employment Services
EUROSTAT	Statistical Office of the European Union
HR	Human Resources
ICT	Information and Communication Technology
ISCO	International Standard Classification of Occupations
ISTAT	Italian Statistical Office
LMI	Labour Market Information
LFS	Labour Force Survey
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne
NUTS	Nomenclature des unités territoriales statistiques
OJVs	Online Job Vacancies
PES	Public Employment Services

Introduction

With the project “Real-time Labour Market Information on Skill Requirements: Setting up the EU System for Online Vacancy Analysis”, Cedefop explores online job-vacancies (OJVs) as a new source of real-time Labour Market Information. By crawling the most important online job-portals of the 28 EU Member States, Cedefop will further its understanding of the changing skills demand in different sectors and occupations. A systematic overview of the online job-portal landscape in each of the 28 EU Member States will identify the most relevant online job-portals and provide context for the data scraped from them. With the Landscaping Activity, Cedefop seeks to acquire insights into the structure of online job-portal markets and the extent to which online job-portals are used in recruitment and job-search. Furthermore, it aims to better understand which factors cause variation in the formats and content of OJVs in different countries.

This Country Report was compiled between April and October 2017 and constitutes a first overview of the online job-portal landscape in Italy. It is based on desk research of available data sources in Italy (e.g. public data, academic research and publications of interest groups) and expert opinions. Chapter 1 describes the methodology used for compiling the report in terms of the relevant search paths and data sources. Chapter 2 gives an overview of the main drivers for the use of online job-portals in recruitment and job-search, while Chapter 3 concentrates on the characteristics of the online job-portal market and lists the most important players. Moreover, it seeks to understand to what extent OJVs published on the online job-portals provide adequate information on the developments in the Italian labour market in terms of the number of vacancies and representation of sectors/occupations. Furthermore, it elaborates on the legal and regulatory framework guiding the activities of the job-portal owners and employers, highlights the differences between the public versus private online job-portals and delineates their relationships with one another. Chapter 4 covers the use of online job-portals in recruitment and job-search. It focuses on the differences in the behaviour of employers and job-seekers across sectors, occupations, qualification levels and regions. Chapter 5 presents the most important online job-portals in Italy for web-crawling and describes a step by step process of the OJV drafting and posting on select private and public online job portals. Chapter 6 concludes the Country Report by describing the main features of OJVs in Italy in terms of format and content. In particular, it explores to what extent OJVs contain information pertaining to hard and soft skills required for the job, how these skills are characterised and what they reveal about the nature of the job.

1. Methodology

1.1. Search Paths

The Italian OJV market has been monitored since 2013 by Wollybi. This is a Labour Market Information (LMI) developed by TabulaeX and CRISP at the University of Milano-Bicocca with the aim of collecting classifying and analysing vacancies posted on the major Italian websites. ⁽¹⁾ Wollybi downloads the vacancies posted on major websites throughout the Italian territory, cleans the data (accounting for duplicates and errors), classifies vacancies according to the standard ISCO classification and subsequently extracts the relevant information contained in web vacancies such as sector, skill requested, education level, experience required etc. Wollybi is now a well-established tool with a large and expanding knowledge base. Operating since February 2013 it contains more than 2.8 millions unique vacancies with the associated information set. Wollybi is the main source for LMI for the Italian labour market.

As Wollybi constitutes such a rich and unique source of data and information, it informed most aspects of the Landscaping Activity. The following progress was made:

- Desk research and the analysis of retrieved materials were conducted between May and September 2017. Furthermore, the selection of websites was considerably widened and refined by also including smaller websites;
- The presence of hard data from Wollybi enabled the implementation of preliminary analysis of the coverage of OJVs with respect to traditional vacancies;
- Several personal contacts and agreements have already been established with major Italian portals from which data are currently being downloaded;
- Over the past years the data and research conducted with the Wollybi database have been presented at several conferences and meetings and a considerable debate has been conducted with policymakers, researchers and professionals ⁽²⁾.

However, it has to be noted that:

- In general, OJVs are a new tool, and in Italy very little research has been conducted with or on them. As a result, their data are rarely used by policymakers and professionals, and the information that can be obtained from interviews is very general and vague;
- We have not conducted a specific interview with PES Online Job-portal representatives, because (as will be explained in the subsequent paragraphs) the PES websites play a marginal role in Italy, they are not well maintained or updated and they post a limited number of vacancies, which do not even necessarily include all vacancies in the public sector. This is why Wollybi does not list the PES among its sources. Policy-makers (even the Minister) are well aware of this problem, but so far no action has been taken to improve this situation;
- The Italian Statistical Office (ISTAT) has several projects involving the use of Big Data in official statistics; it is involved in the ESSnet network and has several capable researchers that could provide consistent added value in this area. However, the hard budget constraints that ISTAT has faced severely hampered the development of tools, and no concrete actions have been taken so far.

¹ Wollybi can be accessed at <http://www.wollybi.com/en/>.

² In this report, we summarise the main findings that derive from these contacts. The names refer only to the most recent contacts with whom a specific interview for the landscaping exercise has been conducted.

1.2. Data Sources ⁽³⁾

1.2.1. Public Data/Academic Research

No public data on OJVs is available in official statistics. However, Wollybi provides a source of data that can be used to generate statistics, albeit there is the need to cope with the issue of representativeness. Regarding academic research, there is a lot of research on textual analysis and on the use of Big Data for social sciences. No specific research has been conducted on OJVs, with the exception of the research by CRISP (Boselli et al. 2014, Boselli et al. 2017, Colombo and Mezzanica 2017, Colombo et al. 2017, CRISP 2017, Dusi et al. 2015).

However, data from Wollybi can be used to compare the features of OJVs with other systems of measuring labour market vacancies. The Italian Statistical Office (ISTAT) conducts a quarterly vacancy survey to determine the number of vacancies in the Italian economy. Based on this, the vacancy rate is calculated, which is a major measure of labour market tightness reported by Eurostat. Unfortunately, ISTAT does not make available a measure of the number of vacancies (only the rate is reported) or the distribution of vacancies across sectors or, more importantly, occupations. In the absence of official vacancy data, data from Wollybi have been compared against Excelsior, the main skill and occupation survey conducted in Italy each year, which analyses occupational needs of firms. Excelsior is not exactly a vacancy survey, since it asks firms which occupational needs they anticipate.

The collected data cover all of 2016. OJVs represent approximately 60% of what was recorded by Excelsior ⁽⁴⁾. In order to facilitate a comparison between different data sets, the subsequent figures report shares, in percentage, of the relevant group in each variable.

Figure 1 reports the distribution of the data at regional level (NUTS 2). The figure reveals that OJVs tend to be overrepresented in the northern regions (Lombardia, Veneto, Emilia Romagna) as compared to the southern regions (Sicilia, Campania, Puglia, Sardegna). This pattern follows the digital divide that disadvantages southern Italy. In the North, where firms and individuals face no constraints in Internet access and computer use, the practice of posting OJVs is more widespread. Figure 2 reports the distribution across sectors.

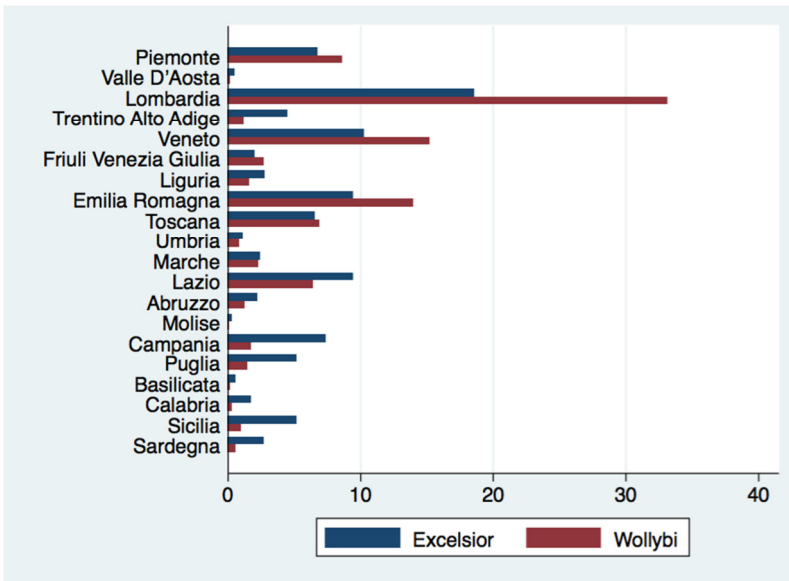
Analysis by occupation is presented in Figure 3 and 4. Each dot of the scatterplot represents an ISCO 2-digit group (ISCO 1 digit) with the number identifying the exact group. The figure shows that in web vacancies technical occupations involving high skills levels (mainly groups 2 and 3) are over-represented, while elementary occupations (group 9) and medium-skill service occupations (group 5) are under-represented.

Overall the comparison between web vacancies collected by Wollybi and other sources reveals that OJVs offer a biased representation of the universe of vacancies. They tend to over-represent high-skilled technical occupations in the manufacturing sector and under-represent low- and medium-skill occupations in the service sector. This is in line with evidence from other countries, such as the US, for which data on OJVs are available.

⁽³⁾ As WollyBi constituted the main source of information, no table assessing the usefulness of different sources is provided in this Country Report.

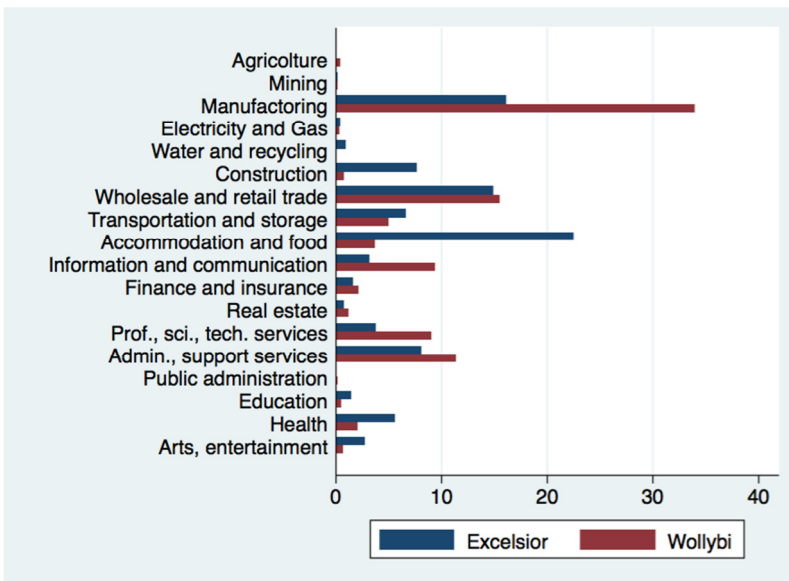
⁽⁴⁾ Note that Excelsior is likely to overstate the real size of vacancies. The survey asks firms about their expected vacancies and not their actual vacancies and the issue in this case is to what extent expected vacancies are an unbiased estimate of current vacancies.

Figure 1: Distribution by region (NUTS 2) (Italy, 2016)



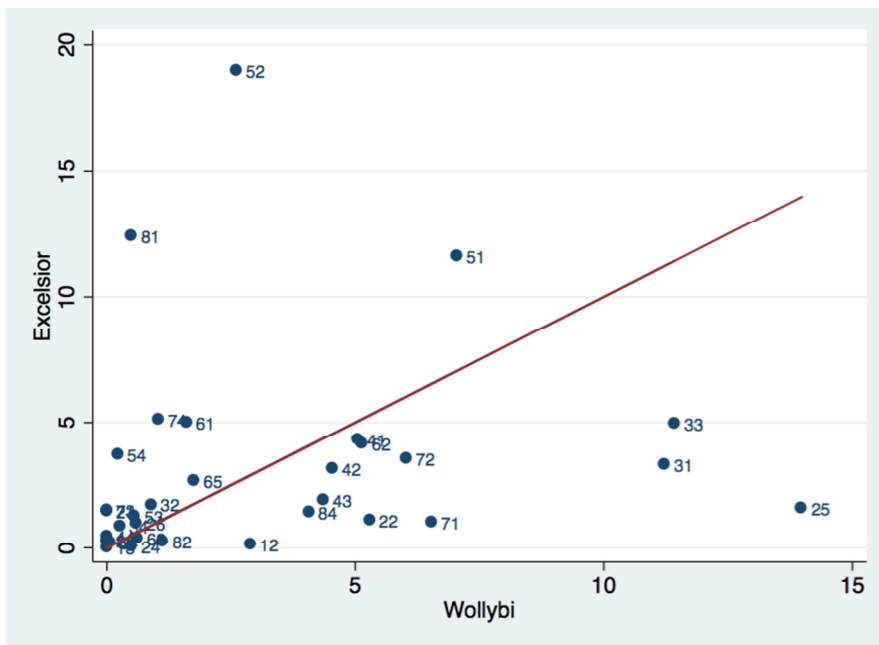
Source: CRISP (2017).

Figure 2: Distribution by sector (Italy, 2016)



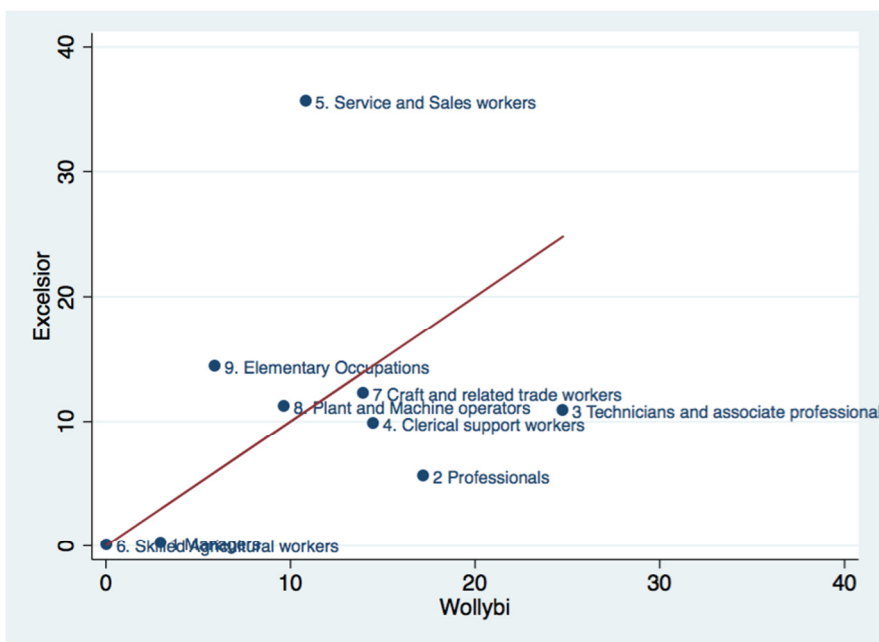
Source: CRISP (2017).

Figure 3: Distribution by occupation, ISCO 2 (Italy, 2016)



Source: CRISP (2017).

Figure 4: Distribution by occupation, ISCO 1 (Italy, 2016)



Source: CRISP (2017).

1.2.2. Research/Surveys of Interest Groups

No research or surveys has been conducted in Italy using OJVs in addition to the research conducted within the Wollybi project

1.2.3. Expert Interviews

The eight interviews conducted during the research for the Landscaping Activity informed several parts of this report. In general, the project profited greatly from further interviews that were carried out during the development of the Wollybi project and the contacts that were established. Three interviews were conducted with major online job-portals, two with the Italian statistical office (ESSnet representative), one with a HR manager, one with a PES representative and one with the labour market section of the Association of Italian enterprises.

Experts from major job-portals provided useful information about the workflow of drafting and posting OJVs (documented in section 5.2.2.) and about the business model of private portals (documented in Section 3.2.2.). They stressed that private firms are substantially changing their business model. Most of portals started as simple job-boards posting vacancies and are now evolving into firms concentrated on post-vacancy business analytics, providing services such as skills analysis of potential candidates, training, pre selection of candidates, etc.

HR specialists stressed that they are giving a lot of effort to improving the content of the OJVs in terms of competencies and skills expected from the potential candidate. Regarding the choice of the search channel, they emphasised the trade-off between quality and quantity. The web offers a much larger pool of potential candidates, but it poses the challenge of selection among a large number of applicants. Other channels (head-hunters, personal contacts, etc.) offer a more thorough assessment of potential candidates, but substantially restrict the pool of potential applicants. If the pre-selection problem is successfully addressed by using the services offered by the online job-portals described above, the online channel becomes very efficient, because it allows all the subsequent selection procedures while maximising the applicant pool.

HR specialists stressed also that the tools that are being developed for the analysis of OJVs are interesting to them when assessing the internal career paths. This is particularly relevant for large firms that sometimes have a better knowledge of the skills and competences of external applicants than of the internal labour force.

The analysis OJVs is also used by HR specialists for monitoring the potential expected losses of human capital. By monitoring the skills most requested by the market they can implement an analysis of the potential competitors and assess the internal workers at major risk of leaving the firm. In this respect, they are mostly interested in obtaining information about the wages offered in order to assess whether they are offering competitive salaries.

The major interest of the association of entrepreneurs is to improve the monitoring of the labour market by analysing the evolution of skills and competencies, the emergence of new occupations in order to improve the services that they offer to their firms.

Regarding experts of the Italian Statistical office, they all emphasised their interest for this type of data for developing statistical information. However they also stressed two major constraints to the development of these instruments:

- Lack of internal competences: web vacancies and big data in general require a lot of technical skills on ICT, which are not fully developed within ISTAT, because these skills need to be updated with high frequency due to the fast evolution of technology in this field;
- Lack of financial resources that are needed to develop the technical infrastructure and to recruit the personnel with adequate competences.

2. Labour Market Dynamics and Impact on the OJV Market

In the past few decades, significant forces and factors have dramatically changed the nature and characteristics of the Italian labour market. Technical progress, globalisation and the re-organisation of the production process – with outsourcing and offshoring – have radically altered the demand for certain skills and competences. In addition, the ageing of the population is intensifying the need for continued training and is likely to affect the structural demand for certain skills, in particular those related to the health and care of the elderly.

The overall impact of these factors on the labour market is multifaceted. On the one hand, some jobs are disappearing while new jobs are emerging; of these jobs, some are simply a variant of existing jobs, while others are genuinely new jobs that were non-existent until few years ago. On the other hand, the quantity and quality of the demand for skills and qualifications associated with the new labour market is dramatically altered. New skills are needed, not only to perform new jobs, but also the skill requirements of existing jobs have changed considerably.

Technology has an impact, not only on jobs, but also on the ways labour demand and supply manifest themselves. Recruitment processes are becoming increasingly intensive on the Web not only because firms find online sources cheaper than traditional channels, but also because they can widen the search area, reaching job-seekers previously too distant. Alternative channels (word of mouth, ads, newspapers, etc.) are all biased toward the local labour market while the use of the Web allows firms to overcome this constraint.

Technology is heavily affecting the supply of labour and the channels available for job-search. Generally, young and more educated individuals are more likely to use the Internet as a job search tool with respect to other channels. Individuals with a lower level of education are less prone to the use of the Internet as a channel for job-search both because they are less “technologically oriented” and also because they have a weaker bargaining power in the labour market, and they therefore tend to prefer less competitive and more “protected” environments. The Internet is a more open and competitive tool, since it exposes individuals to several potential competitors.

Technology is affecting the OJV market also through the digital divide that characterises the Italian economy. Traditionally, there are large regional differences between northern Italy and less developed southern Italy. Table 1 shows the regional difference in labour market indicators. Southern regions are characterised by higher unemployment rates and lower employment rates both overall and most importantly for young individuals ⁽⁵⁾. The labour market condition for young people is particularly problematic: the share of NEET in the South is 37% against 17% in the North. This difference is exacerbated by digitalisation which is spreading very fast in the North due to higher broadband penetration widening the gap with the rest of Italy. Reflecting the digital divide, OJVs tend to be concentrated in regions where there is higher broadband access (see Figure 8 below). This process reflects both demand and supply effects. Less people in the South use the Internet at all, let alone as a job-search channel; in addition, the lower broadband access constrain firms in using the Internet as a recruitment channel.

⁽⁵⁾ In order to avoid distortions by those in education we have considered the 25-34 age band.

Table 1. Regional labour market indicators (2016)

	Employment rate 25-34	Employment rate 15+	Unemployment rate 25-34	Unemployment rate 15+	NEET share	Inactivity rate 35-64
Italy	60.26	43.72	9.62	6.70	26.02	28.55
North	73.38	49.70	4.68	3.82	17.73	22.35
Centre	65.73	46.88	7.17	5.48	21.27	23.69
South	42.72	33.89	18.67	12.48	37.50	40.01

Source: ISTAT.

3.Context and Characteristics of the Online Job-portal Market

3.1. PES Online Job-portal(s)

3.1.1. Legal/Regulatory Framework

There is currently no strict regulation or rules regarding the PES job-portals. The main regulation is that all PES portals also have to post their vacancies on the main PES portal called Cliclavoro ⁽⁶⁾. Surprisingly, most public job vacancies are not posted on the PES online job-portals. The reason is that public jobs are offered through formal public competition that involves a lengthy administrative process. Jobs are advertised through specific channels either in the Italian Official Journal or on the website of the specific public agency that posted the vacancy. The vacancies posted rarely contain a description of the job or a description of the skills that the applicant is expected to have. OJVs for public jobs are generally scanned pdf files that contain the administrative steps that need to be implemented in order to apply for the job and participate in the public competition.

3.1.2. Organisational Structure of the PES Online Job-portal(s)

The main PES job-portal is called Cliclavoro. The main portal is complemented by regional portals, which are hosted by the website of their respective regions. Finally, local PES (organised at NUTS 4 level, e.g. towns) often have a specific website, where vacancies are posted. The problem is that this system is not well integrated. In principle, Cliclavoro should contain all the vacancies posted on regional and local websites, but often communication is not immediate, and in addition, regional websites do not have harmonised formats and structures.

The main problem though is that the PES websites contain only a small number of vacancies, and they are effectively marginal in the Italian OJV market. On 15 November 2017, Cliclavoro displayed 3,168 vacancies, half of which were from the Lombardy region. Table 2 contains a list of the regional websites with the number of vacancies posted. The sum of vacancies posted on regional websites is larger than the number of vacancies on Cliclavoro, meaning that not all the vacancies are transferred. Moreover, the job section of several regional websites is restricted to registered users, making it difficult to analyse the OJV market in the region.

Overall, the PES websites are marginalised in the market; they are not well maintained, rarely updated and only a few firms post vacancies on them (with a few exceptions, such as temporary employment agencies like Adecco, who also other private websites for posting).

3.1.3. Focus of the PES Online Job-portal(s)

The main limitation of the PES online job-portals is that they are not proactive about acquiring vacancies. Private portals all have a clear active strategy: specialised portals continuously look for possible vacancies and strike deals with firms that provide them the data. Aggregators add to this strategy specific spider programmes that scan the web looking for vacancies to post.

⁽⁶⁾ www.cliclavoro.gov.it.

Table 2: Regional and national PES websites (values recorded on 15 November 2017)

Region	Website	Comments
Toscana	http://www.borsalavoro.toscana.it/borsalavoro/	2,840 OJVs
Umbria	http://www.regione.umbria.it/-/offerte-di-lavoro?redirect=http%3A%2F%2Fwww.regione.umbria.it%2Frisultati%3Fp_p_id%3D3%26p_p_lifecycle%3D0%26p_p_state%3Dmaximized%26p_p_mode%3Dview%26_3_groupId%3D18%26_3_keywords%3Dofferte%26_3_struts_action%3D%252Fsearch%252Fsearch%26_3_redirect%3D%252Frisultati	14 OJVs
Valle Aosta	http://www.regione.vda.it/lavoro/cittadini/trovare_lavoro/default_i.aspx	< 100 OJVs
Veneto	http://www.regione.veneto.it/web/lavoro/	No OJVs posted
Lazio	http://www.regione.lazio.it/rl_lavoro/?vw=offertelavoro&pg=0	18 vacancies
Basilicata	http://cliclavoro.lavoro.basilicata.it/Pagine/RicercaOfferte.aspx?hRegionId=1ZJDok95NzzRPcITm1sOPw%3d%3d&TipoRicerca=1IWCmWml2bgmN5HWGyLbQ%3d%3d	1 OJV
Lombardia	http://www.borsalavorolombardia.net/bll/professionil/initBacheca.do;jsessionid=9FF067E3A6B3FD48F626955DFDC9F6F6	1,878 OJVs
Molise	http://www3.regione.molise.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/31	No OJVs posted
Mche	http://www.regione.marche.it/Regione-Utile/Lavoro-e-Formazione-Professionale	Restricted access
Liguria	https://www.regione.liguria.it/homepage/impres-e-lavoro/26-servizi-online/1215-osservatorio-lavori-pubblici.html	Restricted access
Emilia Romagna	http://formazionelavoro.regione.emilia-romagna.it/lavoro-per-te/servizi/per-le-persone/consulta-le-offerte-di-lavoro	Restricted access
Abruzzo	http://www.regione.abruzzo.it/fil/index.asp?modello=lavoratori&servizio=LL&stileDiv=sequence&template=default&msv=orizzont1	0 OJVs
Sardegna	https://servizi.sardegna.lavoro.it/borsalavoro/Cittadino_RicercaOfferte.aspx	36 OJVs
Sicilia	http://www.lavoro.regione.sicilia.it/b@checa/	58 OJVs
Puglia	http://lavoro.sistema.puglia.it/PFPuglia/portale.aspx?idError=1	Restricted access
Piemonte	http://www.regione.piemonte.it/lavoro/	No OJVs
Trentino	https://www.sil.provincia.tn.it/welcomepage/vacancy/cerca	939 OJVs
Bolzano	https://ejob.egov.bz.it/#/	1715 OJVs
Calabria	http://www.regione.calabria.it/formazionelavoro/index.php?option=com_content&task=blogsection&id=106&Itemid=271	Link to Cliclavoro
Campania	http://www.arlas.campania.it/	Not working
Friuli Venezia Giulia	https://offertelavoro.regione.fvg.it/lavoroFVG/home	248 OJVs
ITALY	https://www.cliclavoro.gov.it/Cittadini/Pagine/RisultatiRicerca.aspx#Default=%7B%22k%22%3A%22*%22%2C%22o%22%3A%5B%7B%22d%22%3A1%2C%22p%22%3A%22BdcClicLavoroDataScadenza%22%7D%2C%7B%22d%22%3A1%2C%22p%22%3A%22BdcClicLavoroDataPubblicazione%22%7D%5D%7D	3,168 OJVs

Source: Colombo (2017).

By contrast, PES portals have a passive strategy and wait for firms to publish vacancies on their job-portal. The result is that most firms in Italy do not use PES portals, and in several cases they do not even know of their existence. This has created a vicious circle; the less firms publish on PES portals, the more marginalised the latter become and the less attractive PES portals are for firms. The reason for the limited relevance of PES portals lies mainly in the design. Cliclavoro has been designed with the idea of creating a major portal that could be populated by different information from several sources of the private and the public sector (there is a section of the website where studies on specific sectors or jobs are presented). In other words the system was designed to be a passive collector of information produced elsewhere. In the absence of specific incentives of posting the information on it Cliclavoro never reached a critical mass for being considered as attractive by the providers of information and by those looking for it.

The number of OJVs posted on PES online job-portals is limited. Most of the vacancies are from large temporary employment agencies such as Adecco or Randstad. Few OJVs from the public sector are posted on the PES websites.

3.1.4. Outreach of the PES Online Job-portal(s)

Following what was explained in the paragraphs above, the outreach of the PES online job-portals is minimal. Cliclavoro has approximately 3,100 OJVs posted against 63,000 detected by Wollybi in the same month on the main Italian portals. Unless there is a change in the overall approach, PES online job-portals will continue to play a minimal role in the Italian online job-portal market. As Wollybi already has access to the primary sources (e.g. Adecco, etc.) of OJVs on the PES online job-portals, crawling the PES websites does not constitute added value, and are therefore it will not be used as a source.

3.1.5. Posting of PES Vacancies on EURES

The workflow of the Italian PES on EURES is simple: all vacancies on Cliclavoro are transferred to EURES. The coverage is very high. Out of 3,168 vacancies posted on Cliclavoro, 3,152 were posted on EURES as well. The main problem with EURES is that the content of the original source (Cliclavoro) is very poor, with a limited number of vacancies, and this is reflected in the poor content of Italian OJVs on EURES.

Employers do not consider EURES a relevant platform when posting their vacancies, because EURES is considered a sort of European replica of national PES, which does not have a high reputation among professionals.

3.2. Private Online Job-portals

3.2.1. Legal/Regulatory Framework

There is no specific legal/regulatory framework regarding OJVs. Therefore, the regulatory framework is the same as any other advertisements. The two pillars are the non-discrimination policy (this is actually a constitutional right) and the data protection standards that prevent the use and release of personal information.

3.2.2. Dominant Online Job-Portals and Their Business Models

The market for private job-portals is heavily concentrated with ten main portals accounting for most of the market. The main websites that post vacancies are specialised online job-portals, temporary employment agencies and newspaper websites. The largest market share is held by online job-portals which are specialised websites concentrating on intermediating labour demand and supply on the Web. They are paid by the number of clicks that each OJV receives and by how many formal offers are directed to the company that posted the OJV. For temporary employment agencies, posting vacancies on the PES and private online job-portals is part of their business model: they are seeking to maximise the probability of finding good potential candidates. The employment section on major newspaper websites often is very full, but mostly it is a social addition to their main business model, which is information provision.

These differences in business models also reflect the different target markets. Generally speaking, vacancies posted by temporary employment agencies concern low- and medium-skill jobs with very little technical content. Analogously, newspapers tend to post low-skill jobs. In contrast, high-skill and technical jobs (e.g. ICT jobs) are mainly advertised by specialised online job-portals.

Different approaches result in different pricing policies by online job portals. In specialised portals the cost of posting a vacancy is generally low, between 250 and 300 Euros. This refers to the cost of simple posting with very little value added by the OJ portal. Additional services such as refreshing the position regularly (i.e. placing the vacancy on top every week), wider outreach (e.g. social networks, links with other websites) imply additional costs ⁽⁷⁾. Firms that have a regular and high turnover either buy standardised plans (e.g. 100 vacancies) or a dedicated box in the website. As stressed above the main business models of major portals is evolving as they are investing on post-vacancy business analytics. As a consequence they are decreasing the cost of vacancy posting. Some large sites offer free vacancy posting (indeed for example). For temporary employment agencies online posting is only a part of a larger set of services offered to firms. It is therefore difficult to disentangle the cost of posting the vacancy from the cost of the rest of the services.

3.3. Co-operation Between Public and Private Online Job-portals

Currently there is no co-operation between public and private online job-portals. This is largely due to the passive role played by the PES website in the market. It would be enough for PES portals to strike a deal with a large aggregator to duplicate their OJVs on the PES job-portal in order to increase its attractiveness, but so far no such agreement has been reached. It has to be stressed, however, that private aggregators have very little incentive to strike any deal with PES job-portals, given that the latter have very little to offer in exchange. There are no formal links between private job-portals and PES job-portals. Generally speaking, the OJVs posted on PES portals are also posted on major private online job-portals. Comparing the size of the portals, the PES portals account for less than 5% of the online job-portal market.

⁽⁷⁾ A vacancy with special visibility has a price above 1000 Euros.

3.4. Role of other Recruitment and Job-search Channels

See Section 4.1., where OJVs are compared with other recruitment and job-search channels.

3.5. Expected Trends in the Online Job-portal Market

The analysis of data from Wollybi shows growth in the number of OJVs, which is consistently higher while the number of official vacancies remained relatively stable over the last years. This is consistent with the increasing spread of use of the Internet and of ICT in general. These trends are expected to continue and to strengthen in particular in the southern regions that have lagged behind, disadvantaged by the strong digital divide.

Regarding the structure of the OJV market, it has not changed much during the period of observation by Wollybi. The major portals have maintained their market shares with little changes.

However, contacts with portal owners and the expert interviews reveal that the business model is changing. Specialised portals are progressively widening their services evolving from a pure intermediary between demand and supply to more integrated services to companies. Often they offer to post vacancies for free or provide consistent discounts in return for firms purchasing support services for the process of intermediation (e.g. pre-selection, counselling). The high visibility of OJVs has the drawback that firms often need to cope with a large number of applications that need to be reviewed and filtered. These are higher added value services that online job-portals are now.

4. Use of OJVs in Recruitment and Job-search

4.1. Use of OJVs in the Recruitment of Labour

Italy is characterised by a distribution of firm size, which is highly skewed (see Table 3), and this affects the recruitment process that firms follow.

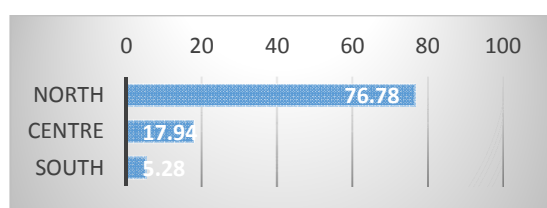
Table 3: Size distribution of firms in Italy (2016)

Size class	Share
1-10	95.36%
10-49	4.06%
50-249	0.49%
<250	0.08%

Source: ISTAT.

Small firms tend to use informal recruitment channels, because they tend to value the personal characteristics of the potential candidate over his/her skills or competences. In a small firm, personal interactions are more important than in large ones, where the organisational structure acts as a partial substitute. Therefore, in the process of hiring in small firms there is a greater emphasis on attitudes and character traits; in this the personal knowledge of the candidate can be of help. There are cost issues as well. Small firms do not possess an HR department and are less at ease with a structured recruitment process that involves the publication of the vacancy, the selection of CVs, etc. Medium and large firms are more likely to use OJVs, because they are a more efficient channel ensuring wider coverage. Moreover, as will be explained in the next sections, large firms have internal customer relations management (CRM) that can be integrated with specific software that automatically sends the vacancy on selected online job-portals as soon as it is created internally. More generally, large firms are more likely to have invested in the digitalisation of the internal organisation and are therefore better equipped for embedding online recruitment in their the HR management processes. Large firms differ in terms of recruitment behaviour and in terms of use of online vacancies. Firms that have an established reputation in the market are less likely to use online job-portals to post vacancies. Instead, they post an OJV on their own website or sometimes they simply parse CVs that individuals drop in a specific section of their website (i.e. “work with us” section). Firms often rely on online job-portals when they have a large turnover of some standardised occupations.

The digital divide between the North and the South of Italy affects firms’ behaviour in posting OJVs. Data from Wollybi (Figure 5) show that more than two thirds of web vacancies are posted in the North and only 5% in the South, while we know from official statistics that the share of actual vacancies are approximately 50% in the North and 20% in the South.

Figure 5. Distribution of Web vacancies in Italy, 2016

Source Wollybi.

4.2. Use of OJVs in Job-search

Regarding the supply-side of the market, generally young and more educated individuals are more likely to use the Internet as a job search tool (25% of the 16-34 year-olds used the Internet for job search compared to 11% of the 35-54 age group ⁽⁸⁾, see Table 4). Individuals with a lower level of education are less prone to the use of the Internet as a channel for job-search, as they are often less “technologically oriented”. Among the active population, 66% of tertiary graduates assess their computer skills as adequate for the labour market, while the percentage falls to 37% for lower tertiary graduates.

Table 4: Key indicators of ICT usage

	High frequency of computer use	Use of internet for job market search	Adequate computer skills for job
Total	56.71%	12.42%	42.68%
NUTS1			
North -East	61.24%	12.44%	47.12%
North-West	61.19%	13.53%	45.24%
Centre	60.22%	11.86%	45.66%
South	48.46%	11.61%	34.79%
Islands	49.55%	12.47%	38.29%
AGE CLASS			
16-34	73.19%	25.72%	55.85%
35-54	62.58%	11.61%	40.72%
55-74	34.45%	1.87%	25.30%
EDUCATIONAL LEVEL			
Lower than tertiary	51.07%	10.96%	37.28%
Tertiary education	87.48%	20.43%	66.61%
EMPLOYMENT SITUATION			
Employed	69.93%	10.34%	43.89%
Unemployed	55.26%	38.84%	38.08%
Inactive	40.17%	5.29%	

Source: Eurostat.

⁽⁸⁾ Percentages refer to the whole active population.

Informal channels for job-search are known to prevail over formal channels in Italy. Table 5 shows the detailed behaviour by job seekers in implementing search strategies. Overall the most frequent channel is the use of networks through relatives or friends (84.4%) followed by sending a CV to firms (69.4%). The Internet as a job-search channel is used by 58.5% of people. Interestingly, while the informal channel and sending a CV display a decreasing trend, the Internet channel is increasing (+3% over the same period of the previous year) and is the most frequent channel for job search among recent graduates.

Table 5: Channels of job search in the previous 4 weeks (2016)

Type of action	Overall	Age			Area		
		15-34	35-54	55-74	North	Centre	South
Public Employment Services	20.7%	20.7%	20.3%	22.8%	24.3%	22.1%	17.3%
2 in a private firm	23.0%	26.2%	20.5%	17.4%	25.0%	21.7%	22.0%
Participated to a selection for public employment	5.5%	7.9%	3.5%	1.7%	4.2%	4.6%	6.8%
Looked at job offers on newspaper	33.5%	34.5%	32.9%	30.2%	38.1%	33.2%	29.9%
Post announcements on newspapers	18.7%	20.5%	17.2%	16.7%	21.2%	17.4%	17.3%
Send CV to private companies	69.4%	77.0%	64.0%	53.6%	73.3%	67.8%	67.0%
Asked friends and relatives	84.4%	83.0%	85.2%	89.2%	80.9%	82.9%	87.9%
Looked for a job on the internet	58.5%	69.5%	50.9%	34.6%	66.2%	57.0%	53.1%
Temporary employment agency	15.5%	16.4%	15.3%	10.8%	27.7%	13.0%	6.8%
Set up a self employment activity	2.5%	2.5%	2.6%	1.4%	2.2%	3.3%	2.4%
Other	0.6%	0.5%	0.6%	0.8%	0.9%	0.7%	0.3%

Source: Microdata of the Labour Force Survey.

The large regional digital divide that affects Italy is reflected in data about job-seekers. In the South, 53% of individuals used the Internet for job search compared to 66% in the North. In the North, all formal channels of job search (sending CV, going to a temporary employment agency, the PES, etc.) are more frequent, while in the South, informal channels are more frequent (used by 88% of job seekers).

Table 6 details the specific actions undertaken by those who are looking for a job on the Internet. The vast majority uses job-boards, but the PES websites are very rarely used (10% among unemployed, 5% among employed), confirming their marginal role in the market.

Table 6: Specific actions for those who looked for a job on the Internet in the previous four weeks (2016)

Specific actions	Unemployed	Employed
PES website	10.48%	5.67%
Online job offers	97.05%	98.01%
Posting announcements on the web	33.10%	36.44%
Other	0.21%	0.42%

Source: Microdata of the Labour Force Survey.

4.3. Expected Trends in the Use of OJVs in Job-search

The trends in online recruitment and job search in Italy are expected to reflect underlying structural factors. As the workforce will become more digitalised, the Internet will become a major channel for looking for a job. At the same time, as the use and availability of broadband connections will spread, firms will also progressively increase their use of these channels.

5. Identifying Online Job-portals for Web-crawling

5.1. Documentation of the Job-portal Research Process

The relevant online job-portals had already been identified and selected in Wollybi. During the Landscaping Activity, we re-ran the search and widened the selection to smaller online job-portals. The inclusion of data from large aggregators, such as Indeed, allows an indirect validation by selecting sources contained in aggregators and not emerging from standard search. The list has been validated with experts and with members of ISTAT (including the ESSnet representative).

Table 7 reports the list of online job-portals with the major information contained in them. The Excel table attached contains more detailed information about the content of each website.

Table 7: List of the most relevant online job-portals Italy identified for web-crawling

Name	Type of job-portal	OJV volume (approx.)	Geographical scope
Infojobs	Primary job-portal	58077	International
Jobrapido	Secondary job-portal		National
Subito.it	Combination of primary job-portal and secondary functions	70598	National
Monster.it	Primary job-portal	40500	International
it.indeed.com	Secondary job-portal	144779	National
Cercolavoro	Secondary job-portal	16399	International
CAREERJET	Secondary job-portal	437626	National
JOB CRAWLER	Secondary job-portal	132416	International
Lavoro.corriere.it	Secondary job-portal	4601	International
MIOJOB	Secondary job-portal	5000	National
KIJJI.it	Combination of primary job-portal and secondary functions	97589	National
BAKECA.it	Combination of primary job-portal and secondary functions	79554	International
Experteer.it	Combination of primary job-portal and secondary functions	4255	International
BachecaLavoro.com	Secondary job-portal	121151	International
Lavoro.org	Secondary job-portal	422146	International
Biancolavoro	Secondary job-portal	8894	International
Gigroup	Primary job-portal	3499	International
Manpower	Primary job-portal	6028	International
Adecco	Primary job-portal	3707	International
Umana	Primary job-portal		National
Etjca	Primary job-portal	650	National
randstad	Primary job-portal	3300	International
Jooble	Secondary job-portal	147739	International
Bestjobs	Secondary job-portal	13604	International
Azduna	Secondary job-portal	51057	International
Hays	Secondary job-portal		International
Jobtome	Secondary job-portal	287247	International
cambiolavoro	Secondary job-portal	1000	National
cliccalavoro	Secondary job-portal	17973	National
openjobmetis	Primary job-portal	1240	National

Source: Colombo (2017).

5.2. Conditions for Drafting and Posting OJVs in the Selected Job-portals

5.2.1. Drafting and Posting an OJV on the PES Online Job-portal

As described in this report, PES websites contain very few vacancies. Their main source of information is temporary employment agencies, which by policy post on PES as well as on private websites.

5.2.2. Drafting and Posting an OJV on a Private Online Job-portal

- **The workflow of drafting and posting an OJV:** The workflow of drafting and posting an OJV can be divided into two parts. The first part is related to the drafting and sending of the vacancy from the firm to the job-board. This process can be manual or automatic. The manual process means that the firm first publishes the vacancy on its website and subsequently it sends the vacancy to specific job-boards. The time lag between the posting of the vacancy on the firm website and sending it to the online job-portal can vary from a few hours to a few days. The automatic process involves a specific software that is integrated with the firm's CRM and automatically sends the vacancy as soon as it is created internally. The second part of the workflow pertains to the management of the vacancy on the online job-portal, as they implement standard checks to assess that the text of the OJV does not contain offensive or illegal statements (e.g. discrimination, etc.). Subsequently the vacancy is posted. Some online job-portals have a clear tracking of the OJV (i.e. they require a minimum set of information and they require a clear definition of the time limit for the vacancy to stay open). Others do not have a clear tracking of the OJV and often leave vacancies open. In several cases the firm and the portal set a date for cancelling the vacancy after a predefined period (usually one month). Agreements generally include the possibility of extending the posting of the vacancy as well as anticipation of removal in case of an excess of applications. There is a general underlying problem that is shared across portals: there is no feedback on the OJV regarding if and when the vacancy posted is filled.
- **The characteristics of the OJV template:** There is no standard shared across web providers, although the templates are often similar, because there is a convergence in the use of certain software for posting vacancies and managing websites. Not all websites display the same information, and when information is present, it can be structured or totally unstructured.

5.3. Contacting the Online Job-portal Owners

Over the years Wollybi has established formal links with the main online job-portals when scraping their websites. We have informed job-portal owners of the new project, and we are signing separate agreements specifying the different nature and scope of the European Project. Given that several portals are part of a larger network or operate in different countries (e.g. monster, Adecco, Randstad, Infojob, Manpower, etc.), we are creating general agreements that are valid for all the countries in which they operate.

No refusals or oppositions have arisen so far.

6. Format and Content of OJVs

6.1. Legal/Regulatory Framework

Currently in Italy there is little regulation on the format and the content of OJVs. They are treated as any other public advertisement and therefore are subject to the general laws against discrimination (by gender, age, race, etc.). Most importantly, the use of OJVs for labour market statistics has not been recognised, which means that the content of vacancies is not required to comply to any classification standards (ISCO, NACE, etc.) although minimal effort in this field would generate significant benefits.

6.2. Format of OJVs

OJVs are mainly in Italian, although large international players (e.g. Monster, Indeed) also provide vacancies in English. Whenever vacancies are published in two or more languages, they are generally posted as two separate vacancies. Often the use of English is intentional if the description of the job has a strong international dimension. No specific factors influence the format of OJVs.

Regarding the structure of the OJVs, there is significant heterogeneity, as each portal uses its own classification and fields, albeit the structure of the vacancy is the same within each platform. Google is supporting the use of a specific format (xml) for describing structured elements. OJVs which use this format are indexed by Google.

6.3. Content of OJVs

As stated above, the structure of OJVs differs across online job-portals, but it is the same within individual job-portals. However, even if OJVs share the same structure, the content may differ substantially. This is due to the fact that some fields can be left empty and/or the information in each field is unstructured. In particular, there is no agreement across online job-portals to use a standard in describing specific fields, such as job description, education, etc. In each field either a natural language taxonomy is used (whatever taxonomy or description is used by the firm that is posting the vacancy) or a semi-structured taxonomy developed by some portals, which again does not correspond to specific taxonomies available (NACE, ISCO/ESCO, etc.)

Below we report the type of information which is generally available in OJVs. All these fields are available in different frequencies in different portals:

- **Job description:** for technical jobs this is generally long and detailed with a full set of expected tasks to be performed and a list of job-specific skills that are needed;
- **Qualification:** the specific level of qualification (level and type) is not always mentioned. The distinction is mainly between graduates and non-graduates;
- **Soft skills:** this is generally the richest part of the content of OJVs. Soft skills are always mentioned, even in technical jobs. This is because soft skills are really important and pervasive and they can promote self selection among potential applicants;

- **Attitudes and behaviour:** This section is also often used for initiating self-selection. Overall, both the sections on soft skills and on attitudes and behaviour are used mainly for implicit positive discrimination rather than for negative discrimination. However, we need to consider that OJVs are basically ads, which therefore tend to exaggerate the content of the job, the quality of the firm, etc.;
- **Wages:** very rarely do vacancies contain a specific reference to the wage indicating the exact figure or the range. If OJVs contain information on the wage, it is generally described with general phrases such as “competitive wage offered”.

6.4. Main Differences Between the Public and Private Online Job-portals

By not containing all advertisements of public vacancies, the PES websites offer very little added value with respect to the private online job-portals.

6.5. Expected Trends in the Format and Content of OJVs

Beyond the expected increase in the number of OJVs that will result from the spread of the use of the Internet as a tool for recruitment and job-search, we expect some developments in the format of OJVs. In particular, there is the need for greater standardisation of content in online job-portals. Currently, the available information is mostly unstructured. Very few fields are always present (job description, location, etc.), but if they are present, the information contained in them is not standardised. For example, the job title does not refer to the ISCO/ESCO classification or the location does not refer to the NUTS classification.

While recognising that the added value of OJVs is mainly in the unstructured component of the description of the job, an effort towards a greater standardisation of their content is needed. This could be facilitated by the progressive consolidation of the market. The online job-portal market is already concentrated, and the tendency is towards a stronger consolidation. The reduction in the number of players in the market would naturally favour standardisation. However, this process could be facilitated by a more effective and intelligent regulation.

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Expert Interviews

Name of organisation	Type of organisation	Expert's position	Interview date
Monster	Private online job-portal	Marketing manager	September 2017
Monster	Private online job-portal	International affairs manager	June-July 2017
Ifnojobs	Private online job-portal	Marketing manager	July 2017
Insurance and finance company	Large international corporation	HR manager	June 2017
Confindustria	Association of industrial firms	Head of the Labour market section	June-July 2017
Regional PES office	PES	Labour market section	September 2017
ISTAT	Italian Statistical Office	Head of the Big Data project	September 2017
ISTAT	Italian Statistical Office	ESSnet expert	September 2017