

## INCLUSION OF PEOPLE WITH DISABILITIES IN THE LABOUR MARKET: DISENTANGLING INDIVIDUAL EMPLOYABILITY CHARACTERISTICS

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**Abstract.** *In this study, we use data derived from different administrative sources to investigate the employment of people with disabilities through targeted placement services in the Lombardy region. Our analysis reveals that within the period considered (2018–2022), there was an increase in the proportion of employed people among those registered with these services. The share of individuals hired on permanent contracts also increased. Among the most relevant characteristics influencing an individual's chances of employment were citizenship, age, education and degree of disability. Individuals' chances of securing a permanent contract were also affected by gender.*

**Keywords:** *Labour market; Disability; Targeted placement; Inclusion.*

### 1. INTRODUCTION

Regulation and promotion of the employment of people with disabilities in Italy is the object of Law no. 68/1999, which delegates to the regions the management of the labour market. The law's implementation, therefore, depends on the regions' ability to efficiently coordinate the various actors involved in the inclusion of people with disabilities in the labour market. The means established by the law to accomplish this inclusion are targeted support and placement services. People with disabilities seeking employment through targeted placement services must be registered on a list held by the competent offices, which manage

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the ranking of the beneficiaries of Law 68/99 and supervise placements (Giovannone, 2022).

Despite the law's fairly advanced protection of the right to work of people with disabilities (van der Zwan and de Beer, 2021), difficulties persist: these include prejudice, inefficiencies within employment centres and factors such as the situation of the labour market, affected since 2008 by the long-lasting effects of a serious economic crisis and more recently by the economic consequences of the Covid-19 pandemic.

This research aims to shed light on the inclusion of people with disabilities in the labour market through the targeted placement system over the 5-year period 2018–2022 and to explore how different characteristics influence both the probability of being employed and the likelihood of obtaining a stable employment contract, namely a permanent contract. It contributes to the literature on the topic by outlining not only whether local measures to promote the employment of people with disabilities are effective but also which individual characteristics may hinder the effectiveness of such interventions. Furthermore, the study employs a novel dataset, derived from public administration sources which are not publicly available, reflecting a process subject to strict privacy guidelines. The results raise implications for local policies, such as which subgroups among the large and heterogeneous group of people with disabilities should be addressed by more targeted interventions.

## 2. BACKGROUND

Parts of the literature on labour market inclusion of people with disabilities focus on the institutional factors affecting entrance into the labour market and particularly on the effect of anti-discrimination laws aimed at reducing barriers to job market inclusion (Jones, 2008), while other contributions focus on variations in the rate of employment between different welfare regimes. In this regard, Tschanz and Staub (2017) examine how disability policy, including labour market integration policies, varies among different welfare regimes in Europe, identifying four distinct models: the encompassing model, prevalent in Nordic countries; the activating and rehabilitating model seen in Central European countries; the preference for social protection largely held in Southern European

countries; and a distinct model followed in Eastern European countries, characterised by few guaranteed civil rights.

When considering the degree to which people with disabilities are included in the labour market, two main indicators have been used to compare countries:

- some contributions examine the employment rate of people with disabilities per se: Jones (2008), reviewing multiple literature sources on the impact of disability on labour market outcomes, and specifically on employment and earnings, found a penalty associated with disability, regardless of the time, the data used and the place in which those data were collected; Heggebø and Dahl (2015), examining unemployment among people with ill health in a pre-crisis (2007) and in the crisis (2011) period in the 28 EU countries, found that this was fairly stable over time and that such people experienced unemployment to a lesser extent than those with good health status in the crisis year, if only in countries with high overall employment rates;
- others use the disability employment gap (DEG), that is, the difference in employment rates between people with and without disabilities (Geiger et al., 2017; van der Zwan and de Beer, 2021). Geiger et al. (2017) performed a cross-sectional comparison of 25 countries, comparing their DEG scores as shown by different surveys. In some cases, they found concomitant results across different surveys on the same country, while in others they found lower DEGs where higher-quality surveys had been conducted, highlighting the need for measures that can more effectively be compared over time and space. Van der Zwan and de Beer (2021) examined how the DEG varied by country and gender and how labour market policies influenced the size of the gap. They found that Southern European countries had comparatively smaller disability gaps and that stricter legislation, such as Italy's mandatory quota system, tended to be beneficial for people with disabilities.

There are 20 EU countries implementing the quota system, including Italy, and those with the lowest DEGs are among them (Richard and Hennekam, 2021).

When we consider the national panorama, and more specifically the targeted placement system, the literature on the topic is quite sparse. A recent contribution (Moscatelli et al., 2024), focusing on targeted placement from the perspective of

companies in Lombardy, uses qualitative analysis to understand how the process could be improved from their viewpoint. The findings outline practical suggestions to foster improvement at the regional level, including boosting the networks of local stakeholders operating in the field of labour market inclusion of people with disabilities and improving the homogeneity of the procedures followed in different regions.

What most of the contributions mentioned here, as well as others focused on the national level, have in common is that they concentrate on the pure correlation between disability and labour market participation, without considering the features of specific jobs and how the individual characteristics of disabled people influence their entrance to and permanence in the job market.

Regarding the national level, in the scientific literature, there is not much evidence concerning labour market entrance realised through targeted placement mechanisms. The sensitivity of the data concerning people with disabilities is among the main reasons for this.

Law 68/99 regulates the so-called reserve quotas. Within the framework of this law, the initial provisions that warrant reflection here pertain to the subjective and objective scope of application.

To delve into the specifics, the obligation to hire applies to both public and private employers who are required to employ workers from disadvantaged groups, as specified by the so-called reserve quotas.

One positive aspect to highlight is that Law 68/99 has significantly expanded the range of businesses subject to hiring obligations, now including those with workforces ranging from 15 to 35 employees, hitherto excluded by the previous regulatory framework.

The criteria for calculating the reserve quota are outlined in Article 4 of Law 68/99, which has undergone significant regulatory changes with controversial practical implications. On the one hand, the range of individuals to be considered for the correct calculation has been expanded. On the other hand, certain categories of workers have been excluded, limiting access to employment for disabled individuals who are 'external' to the company.

Through the use of a dedicated fund, Lombardy's regional administration, in applying the law, finances services ranging from providing technical assistance to companies that need to comply with reserve quotas to tutoring people with disabilities who are seeking employment.

In this context, the aim of the present study is twofold:

(I) Understanding to what extent people with disabilities who choose to register on the targeted placement lists in Lombardy are included in the labour market and whether other specific measures designed to foster their employment are effective.

(II) Delving into the nature and characteristics of their employment (e.g. in terms of duration of contracts and precariousness of positions) and understanding how individual characteristics may impact the efficacy of such measures.

### 3. DATA AND METHODOLOGY

The research was carried out exploiting data from different data sources: the initial dataset was built by merging data from provincial targeted placement offices (which are in charge of collecting and retaining the records of the beneficiaries of Law 68/99) and data from mandatory communications (*Comunicazioni obbligatorie*), which are made on the creation, modification or termination of an employment contract.

The two sets of data can be described more specifically as follows:

- The data collected from the targeted placement offices contained the records of a sample of people who registered at the offices in 2017. They were collected from five provinces: Milan, Bergamo, Monza and Brianza, Cremona, and Mantua. Despite not being perfectly representative of the whole region, the chosen provinces were among those with the highest number of people registered. The total number of observations collected from the five provinces was 8,099;
- The data collected from the mandatory communications data referred to the same individuals registered in 2017, following their careers over five years, from 2018 to 2022, registering their occupational status and type of contract (if employed) at the end of each year.

The two datasets were merged using the personal identification numbers of the individuals. The privacy concerns raised by this process were addressed by using a password-protected cloud storage system to exchange and merge data.

After matching, each personal ID number was subjected to a pseudonymisation process, allowing for complete anonymisation of the records.

The resulting final dataset, containing observations of 8,099 individuals over five years, was harmonised. Later, two different analyses were performed, utilising multilevel logistic regression models.

We employed a multilevel logistic regression model to take into account the structure of the data, nested within five different provinces, each with its own contextual features, so that we were able to account for the effects of unobserved group characteristics. The model equation took the form.

$$\text{logit}(\text{Pr}(Y_{ij} = 1)) = \beta_0 + \beta_1 x_{1ij} + \dots + \beta_m x_{mij} + u_j$$

where  $Y_{ij}$  is the binary response variable for the  $i^{\text{th}}$  individual within the  $j^{\text{th}}$  cluster,  $x_{1ij}$  through  $x_{mij}$  are the  $k$  predictors measured on the  $i^{\text{th}}$  subject in the  $j^{\text{th}}$  cluster.

The target variable was different between the two models used:

- First, we tried to understand which individual characteristics had a positive or negative effect on the probability of being employed, with the dependent variable taking the value 1 if the individual was employed at the end of the year considered (observed on 31 December) and 0 if not. The multilevel model considered the structure of the data, nested at the provincial level.
- In a second multilevel logit model, we checked whether the same characteristics influenced the probability of obtaining a stable employment position, namely a permanent contract, with the dependent variable assuming the value 1 if the individual had a permanent contract at the end of a given year and 0 if their contract was not permanent, namely in all other cases (apprenticeship, on-call and all other types of fixed-term contracts). The type of contract recorded was that observed on 31 December of the year under consideration.

The initial variables included in the dataset were citizenship (binary, distinguishing between Italian or foreign), gender, educational level (no education title (ISCED 0), primary education (ISCED 1), lower secondary education (ISCED 2), upper secondary education (ISCED 3), post-secondary non-tertiary education (ISCED 4), or short-cycle tertiary education or higher (ISCED 5) and

year (ranging from 2018 to 2022). Other variables included were degree (percentage) of disability and marital status. As predictors in the model, we included citizenship, gender, age, age-squared (to check whether the age effect was linear or not), degree of disability and educational level (no title or primary; secondary; tertiary or higher). We also controlled for time to check whether a pre- and post-Covid-19 effect was visible in our data.

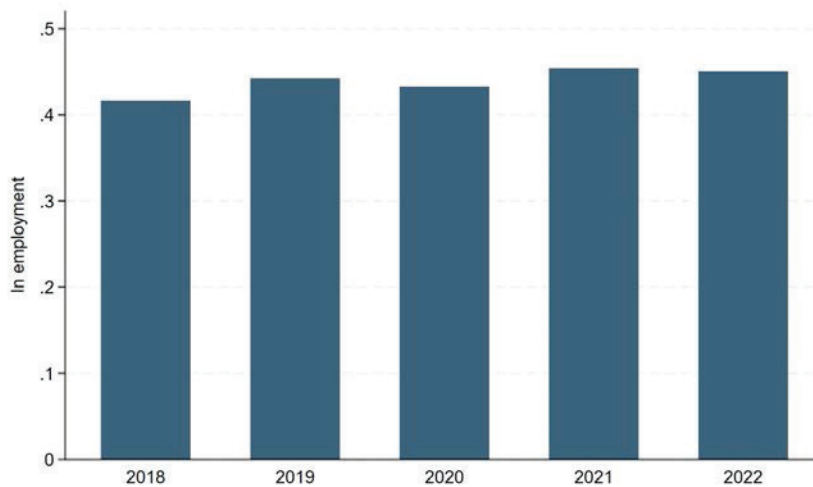
### 3.1 SAMPLE CHARACTERISTICS AND DESCRIPTIVE STATISTICS

The following table shows the starting characteristics of the sample collected from the targeted placement offices among people registered in 2017.

**Table 1: Targeted placement sample's characteristics**

Average percentage of disability (%)	66.2	
Average age	42.3	
	N	%
<b>Gender</b>		
Men	4,673	57.7
Women	3,426	42.3
<b>Education level</b>		
ISCED 0	26	0.3
ISCED 1	493	6.2
ISCED 2	2,910	36.8
ISCED 3	1,556	19.7
ISCED 4	1,958	24.8
ISCED 5	955	12.1
<b>Citizenship</b>		
Italian	7,450	91.9
Foreigner	649	8.0
<b>Civil status</b>		
Single	11,985	51.2
Married	7,810	33.3
Separated or divorced	2,625	11.2
Widowed	330	1.4

As we can see from Figure 1, the percentage of individuals on the lists who were employed on 31 December was above 40% in each of the years considered. The lowest share of employed individuals was registered in 2018. It subsequently increased (2019) and decreased again in the year of the Covid-19 outbreak (2020). The following year, 2021, recorded a slightly higher percentage, which remained stable in 2022.



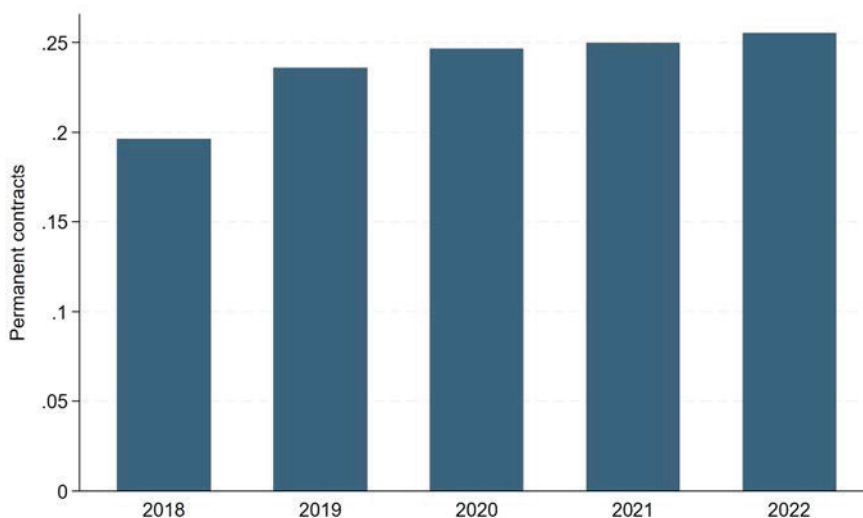
**Figure 1: Percentage of employed individuals on the whole sample (Years 2018-2022)**

If we look at the percentage of permanent contracts in our sample, this increased progressively each year, from 19.6% in 2018 to 23.6% in 2019 and 24.6% in 2020, reaching 25.5% in 2022.

Two other features of our data that must be highlighted are the following: 39.2% of the sample appear in our data as “never employed”, namely they were never employed when the snapshot the 31<sup>st</sup> of December of each of the observed years was taken. This suggests that these individuals might never have been employed over the five years considered or that they might have been so only for short and non-contiguous periods. The second is that a considerable percentage of the individuals contained in our sample seem to have been subject to a fairly high job turnover: over the five years considered, 16.2% had held at least 2



different positions, 5.1% at least 3 positions, 1% at least 4 and 0.2% at least 5. This phenomenon appears to have been slightly more frequent among men than among women.



**Figure 2: Percentage of employed individuals with a permanent contract on the whole sample. Years 2018-2022.**

#### 4. RESULTS

The analysis revealed as the most important in affecting the probability of entrance into the labour market were almost the same as those impacting the probability of obtaining a permanent contract.

Being male had a statistically significant impact on an individual's probability of securing a permanent contract. While the coefficient of gender was not significant for the probability of obtaining a job, women were less likely to obtain permanent contracts: according to our data, men registered on the targeted placement lists were 10.2% more likely to secure a permanent contract than women. Previous studies conducted in Lombardy region showed that, among the

general population, being a male seems to be positively correlated with both the probability of being in employment and the chances of having a permanent contract (PoliS-Lombardia, 2022). It is therefore interesting to note that, for people registered in the targeted placement lists, there is not a substantial difference in the probability of getting a job between males and females.

Being a foreigner resulted in a 42% lower probability of obtaining a permanent contract and a 22% lower probability of access to employment. The magnitude of the coefficient is quite high and may shed light on a double disadvantage effect of disabled immigrants in the labour market: among the general population, in fact, migrants are often employed in low skilled occupations, facing the risk of overqualification more than the risk of unemployment (Riva and Zanfrini, 2013).

We controlled for education: having a tertiary education had a significant positive effect on both the probability of securing a job and that of obtaining a permanent contract (respectively, increasing the chances of getting a job by 67.3% and those of obtaining a permanent contract by 123.6%); secondary education was in both models non-significant compared to the reference category (primary education). If we look at the descriptive statistics provided on the general population by Istat (2022), we can observe a relevant gap in the employment rate of people with primary and people with secondary education, suggesting that a secondary school education title does play a role in the odds of getting a job in this case. It is instead interesting to observe, among people registered in the targeted placement lists, the huge impact of a tertiary education title on the chances of entering the job market and/or being hired with a permanent contract.

Age had a linear and negative relationship with the probability of both events: a 1-year increase in age decreased the likelihood of employment by about 4% and the likelihood of a permanent contract by about 2.1%. The degree of disability had a negative and significant impact on the probability both of obtaining a job and a permanent contract, but the magnitude of this impact was not as great as we might have expected. A 1% increase in the degree of disability decreased the likelihood of getting a job by 1.8% and the likelihood of securing a long-term contract by 1.1%. The relatively small magnitude of the coefficient could perhaps be attributable to heterogeneity in terms of disability types in the sample (our data did not include this information), which may have impacted individuals' chances of securing employment differently. Finally, controlling for time, we observe positive and significant variations over time both in the

probability of entering the job market (even if the significance decreases in 2020, the year of Covid’s outbreak) and in the likelihood of obtaining a permanent contract.

There was considerable provincial variation in the chances of getting a permanent contract but not in the likelihood of getting a job.

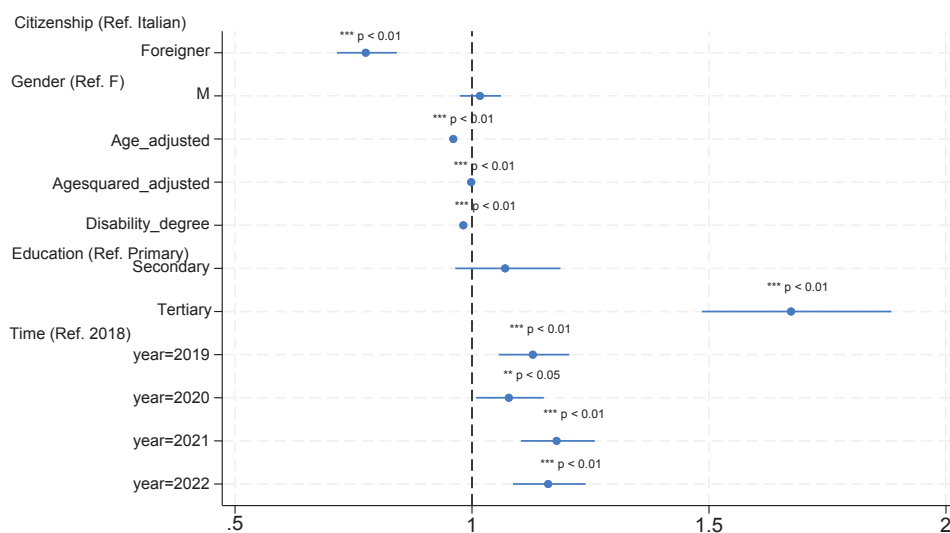
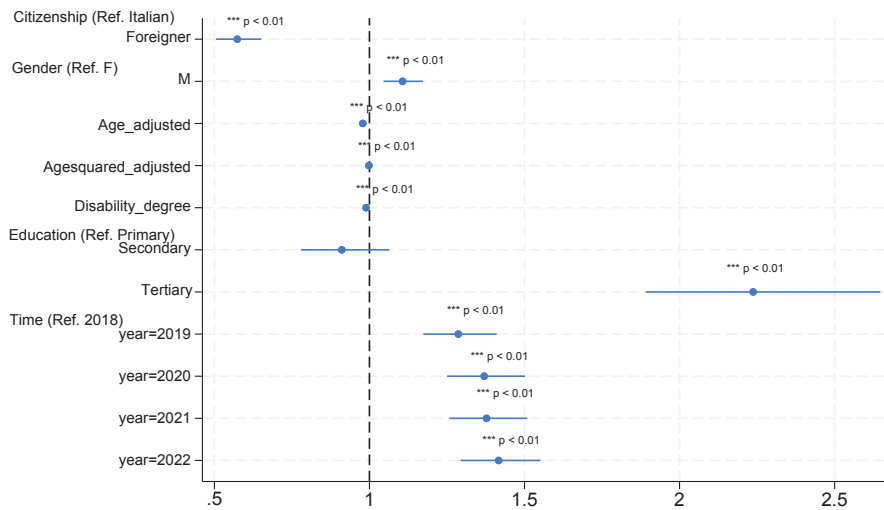


Figure 3: Odds ratio Model 1. Dependent variable: Employed (Yes/No).



**Figure 4: Odds ratio Model 2. Dependent variable: Permanent contract (Yes/No).**

## 5. CONCLUSIONS

In this study, we used data derived from different administrative sources to investigate the employment of people with disabilities through targeted placement services in Italy (more specifically in Lombardy). Our analysis showed that there was an improvement over the years considered both in the probability of finding employment for the individuals registered on the targeted placement lists and in their chances of being hired with stable (permanent) contracts. Among the characteristics with the strongest positive influence on individuals' chances of securing employment were being Italian, having completed tertiary education and having a lower degree of disability. The same applied to individuals' chances of being hired with a permanent contract, except that in this case, gender also played a role, with being male associated with a higher probability of obtaining such a contract. Our results also suggest that geographical location in terms of province might have an impact concerning the type of contracts available to disabled individuals. Eventually, our findings show that, for people in the targeted placement lists, having a tertiary education has a huge impact, with respect to

primary education, both in the odds of being hired and in that of obtaining a permanent contract. Therefore, more attention should be paid on the labour market insertion of people with disability with lower education levels.

These results are useful to inform more targeted policies and measures aimed at improving the extent to which local placement services are effective in achieving the labour market inclusion of people with disabilities. If cases are identified in which a double disadvantage may be at play (such as, for instance, being a foreigner and disabled), more specific interventions may be discussed and designed to address them. Furthermore, this evidence may be useful to broaden the discussion from the solely binary outcome of being “in” or “out” of the job market to the quality and stability of placements available for the heterogeneous subgroups of the people registered on the targeted placement lists.

Thanks to the collection of data from multiple sources, this paper is aligned with one of the commitments made by countries in the 2030 Agenda for Sustainable Development: to obtain better statistics and to allow the monitoring of progress in the labour market inclusion of disabled people (OECD-ILO, 2018).

## **6. LIMITATIONS AND SHORTCOMINGS**

Our research has some limitations. Firstly, the sample of people selected among those registered with the targeted placement services may not be perfectly representative of the whole Lombardy region. Secondly, our data suffer from the same limitations as most administrative data, including a high number of missing values that prevented us from using certain variables and incomplete or inaccurate data items.

Furthermore, some records were improperly entered, rendering data harmonisation impossible in some cases. As a result, we may lack relevant information on characteristics that could be relevant mediators in our analysis, such as the previously mentioned type of disability.

Finally, despite having information over multiple years for single individuals, we only have the observed value on 31 December of each of the years considered, leaving us unaware of any changes occurring within the year.

## REFERENCES

- Geiger, B. B., Van Der Wel, K. A. and Tøge, A. G. (2017). Success and failure in narrowing the disability employment gap: Comparing levels and trends across Europe 2002–2014. *MC Public Health*. 17(1), 1-7.
- Giovannone, M. *L'inclusione lavorativa delle persone con disabilità in Italia*. ILO. [https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---ilo-rome/documents/publication/wcms\\_874035.pdf](https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---ilo-rome/documents/publication/wcms_874035.pdf). Last access: 06/03/2024.
- Heggebø, K. and Dahl, E. (2015). Unemployment and health selection in diverging economic conditions: Compositional changes? Evidence from 28 European countries. *International Journal for Equity in Health*. 14(1), 1-17.
- Istat. (2022). *Labour Force Survey Statistics*. <http://dati.istat.it/>. Last access: 05/02/2024.
- Jones, M. K. (2008). Disability and the labor market: A review of the empirical evidence. *Journal of Economic Studies*. 35(5), 405-424.
- Moscattelli, M., Pavesi, N. and Ferrari, C. (2024). Targeted placement for people with disabilities in Italy: A perspective from Lombardian companies. *Equality, Diversity and Inclusion: An International Journal*. 43(9), 1-17.
- OECD-ILO. *Labour Market Inclusion of People with Disabilities*. [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms\\_646041.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_646041.pdf). Last access: 20/09/2023.
- Polis-Lombardia. *Indagine sull'occupazione femminile e maschile delle imprese in Lombardia con più di 50 dipendenti*. [https://www.polis.lombardia.it/wps/wcm/connect/13033778-40bd-4840-9ced-9e39c43e09b8/221351SOC\\_occupazione\\_femm\\_masch\\_2022\\_ed2023giugno.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-13033778-40bd-4840-9ced-9e39c43e09b8-oGSRTIT](https://www.polis.lombardia.it/wps/wcm/connect/13033778-40bd-4840-9ced-9e39c43e09b8/221351SOC_occupazione_femm_masch_2022_ed2023giugno.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-13033778-40bd-4840-9ced-9e39c43e09b8-oGSRTIT). Last access: 06/03/2024.
- Richard, S. and Hennekam, S. (2021). Constructing a positive identity as a disabled worker through social comparison: The role of stigma and disability characteristics. *Journal of Vocational Behavior*, 125, 103528.
- Riva, E. and Zanfrini, L. (2013). The labor market condition of immigrants in Italy: The case of Lombardy. *Revue Interventions Economiques. Papers in Political Economy*. (47).
- Tschanz, C. and Staub, I. (2017). Disability-policy models in European welfare regimes: Comparing the distribution of social protection, labour-market integration and civil rights. *Disability & Society*. 32.8: 1199-1215.
- van der Zwan, R. and de Beer, P. (2021). The disability employment gap in European countries: What is the role of labour market policy?. *Journal of European Social Policy*. 31(4), 473-486.