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Youth employment partnerSHIP - evaluation studies in Spain, Hungary, Italy and Poland

The WP 3 National Report – Italy

EEA and Norway grants fund for youth employment active youth, Call for proposals – Full proposal call no. 2017-1b Project index no.: 2017-1-008.

Index

1. Introduction

Italy is one of the six founding members of the European Economic Community, in 1948, together with Belgium, France, Luxembourg, the Netherlands and Germany.

Since 1997 Italy has experienced a season of labour market reforms aimed at introducing increasing flexibility (Treu Package [Law 196/1997], Biagi's Law [Law 30/2003], Monti-Fornero Law [Law 92/2012]). Moreover, in addition to the legislative innovations, policies have been put in place to support employment. In the way out from the Great recession, social security rebates constituted one of the main leverages of interventions aimed at incentivising hires in Italy with the goal of both the economic recovery and promoting general employability, supporting the labour market participation. In particular, in 2015 a conspicuous financial incentive for firms hiring (both for new hires and transformations of fixed term to open-ended ones) was introduced by the "Financial Stability Law 2015" (Law 190/2014). Few months later, the Jobs Act (Law 183/2014), via the Legislative Decree n. 23, March 4th 2015, introduced the graded-security contract (*contratto a tutele crescenti*): since March 2015 all newly signed open-ended employment contracts entail no reinstatement in case of dismissal declared unlawful by a court, unless in case of discriminatory dismissal.

This study aims to evaluate the impact of both economic incentive in hiring young workers in open-ended jobs caused by social security costs rebates (Law 190/2014, art. 1, c. 118) and the reduced firing cost of open-ended employees (Legislative Decree 23/2015 under Law 183/2014). A counterfactual approach using a difference-in-differences model is adopted. Analyses are conducted on the SISCO database, released by the Ministry of Labour and Social Policy and built using the *Comunicazioni obbligatorie on-line* archives.

The report is organized as follows. Section 2 deals with the description of the institutional context of the reforms, with details concerning the graded-security contract reform, Law 183/2014, and the hiring incentives introduced by the Financial Stability Law 208/2015. Section 3 deals with the review of the literature concerning the policies under scrutiny. Section 4 is devoted to the description of the administrative data sources and the sample characteristics, while Section 7 explain the empirical strategy and Section 0 exhibits the results of the counterfactual evaluation. Section 186 draws conclusions and provides recommendations based on the findings of the study.

2. Legislative and institutional context

In this section we will give a detailed account of the two policies jointly under evaluation in this work, namely the social security rebates introduced by the "Financial Stability Law 2015" (Law 190/2014) that became effective on 1 January 2015 and the new graded-security contract introduced by the Legislative Decree n23, (according to Law 183/2014 "the Jobs Act"), which entered into force on 7 March 2015.

2.1. The social security rebates in detail: Law 190/2014

The first policy is the Law 190/2014. Table 1 reports its main features. The intervention was characterised by the full rebate of social contributions for all open-ended employment contracts signed in the time window 01 January 2015 - 31 December 2015. It covered a maximum of €8,060 per year per worker[1], and lasted for 3 years. To be Eligible the workers should not have had an open-ended employment contract expired during the previous 6 months[2]. The eligible recipients of the incentives are private or public enterprises, with the exclusion of the public administration.

Table 1 Characteristics of Social security rebates, Law 190/2014

Type of measure	Normative sources	Final funding (mln €)	Recipient	Target of the policy	Measure	Duration
Hiring incentives 2015 Social security rebates for new hires with graded-security contracts	Law 190/2014 art.1 cc. 118-124 INPS Circ. n. 17/2015 and n. 178/2015; Msg. n. 1144/2015	2015: 2,233.7 2016: 6,359.7 2017: 5,415.8 2018: 2,703.8 Total: 16,703	All employers, including associations and public enterprises but excluding public administration. **Eligibility:** No pending contributory arrears or any other irregular situation regarding collective agreements or territorial agreements.	All open-ended employment contracts, (part-time and full-time) issued in the time-window 01.01.2015 – 31.12.2015. **Eligibility:** Without open-ended employment contract[3], for at least 6 months or in the 3 months before the reform (01.10.2014 – 31.12.2014) without contracts with employers related to the prospective recipient.	100% of the social security contribution, for a maximum of €8060 per year per worker with normal hours, scaled proportionally to the actual contract hours.	36 months. During maternity leaves, the rebate is suspended.

[1] The maximum amount corresponded to the contribution for a full-time open-ended employment contract and in case of short-time arrangements was scaled down proportionally.

[2] In order to prevent opportunistic behaviour, a clause that the worker should not have been fired in the time-window between the announcement of the policy and its actual entrance into force, i.e. the period between 01 October 2014 and 31 December 2014 was also added.

[3] Non-eligibility applies to apprenticeship, open-ended domestic work contracts and open-ended agency contracts. Intermittent contracts are eligible, despite being open-ended employment contracts, because they provide an improvement in terms of stability of the same work relationship.

Sources: (INPS, 2019) (Ministry of Labour, ISTAT, INPS, INAIL, ANPAL , 2019, p. 51-52), *with additions by the authors.*

It is worth noting that other subsidies took place in the time-period of 2015, namely the experimental "Bonus Giovannini" (Law Decree 76/2013) and the "Youth Guarantee" (Directorial Decree of the Ministry of Labour and Social Policies, 8 August 2014). They both referred to the population 18-29 but they were minor in terms of funding, 37.7 and 17.2 mln € respectively, and coverage, as the former intervention concerned 16,908 contracts (Ministry of Labour and Social Policies *et al*. (2019).

2.2. Graded security in detail: Law 183/2014

The other policy is the Legislative Decree, March the 4th, n. 23, issued under Law 183/2014 (the so-called *Jobs Act*), that entered into force on 7 March 2015, which reformed three contract categories: open-ended employment contracts, fixed-term contracts and the use of *vouchers* to pay workers.

Firstly, it introduced a new type of open-ended employment contract substituting the previous one, characterised by graded security and removing reinstatement in cases of invalid non-discriminatory layoffs – such reform reduced uncertainty about the costs of unfair dismissals. Secondly, it revoked the former legal threshold based on the proportion of fixed-term to open-ended contracted employers for each "firm unit" and limited the maximum duration of a short-term contract to 36 months. Thirdly, it increased the maximum amount of revenues allowed for workers paid *via* vouchers. The changes were targeted to firms with at least 15 employees, which obtained a strong reduction of the firing costs.

Such reform[4] resulted in a graded-security system that aimed at equalising the hiring and firing costs of fixed-term and open-ended employment contracts and at the same time inducing a strong dualization between such contracts and "non-standard" contractual arrangements. Together with the

[4] Despite they constitute a coherent *unicum*, the *Jobs Act* needs to be formally separated by the Decree Law 34/2014, which entered into force in May 2014 and abolished the law provision on the reasons to issue temporary employment contracts, that were strictly limited to cases of workers' temporary substitution (maternity, illnesses) or temporary needs in production. Indeed, a few changes concerning vouchers (extended to all industries including the public administration) and fixed-term contracts (extended typologies) were already introduced by the Law 92/2012.
The most recent amendment to the *Jobs Act* is the Law 96/2018 that introduced limitations to the number of renewals of short-term contracts for a maximum of 24 months, requiring the registration of the economic reason of issuance, that was regulated by law provision. In addition to that the sentence of the Constitutional Court of the 26 September 2018 the compensation in cases of invalid layoff for open-ended employment contracts was sentenced unconstitutional due to the proportionality-to-tenure feature.

Jobs act's and its Legislative Decrees, in the same period hiring incentives were put in place with the Financial Stability Law 2015 (Law 190/2014)[5], which are covered in the next sub-section.

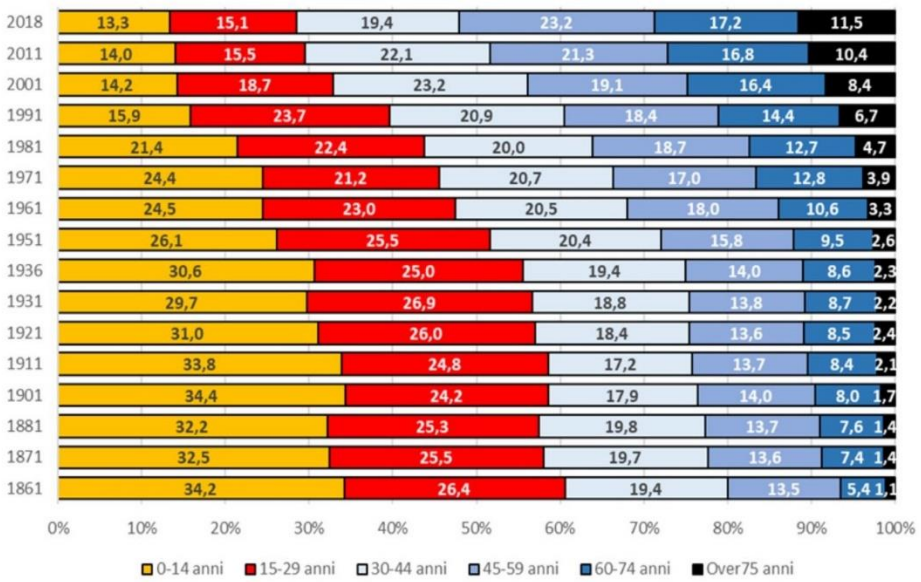
3. Related literature

This Section 3 deals with the review of the literature concerning labour conditions of young people in Italy by comparison with other European Countries (3.1): facts and figures, trends and development. Chapter (3.2) reports some case of studies already in literature concerning the policies under scrutiny.

3.1. Youth activity, employment and unemployment rate

Youth high unemployment, law activity and employment rates represent structural phenomena in the Italian economy since early seventies. Long term trends show also an ageing population in Italy.

Figure 1 The structure of the Italian population from 1861 to 2018, by age groups (%)

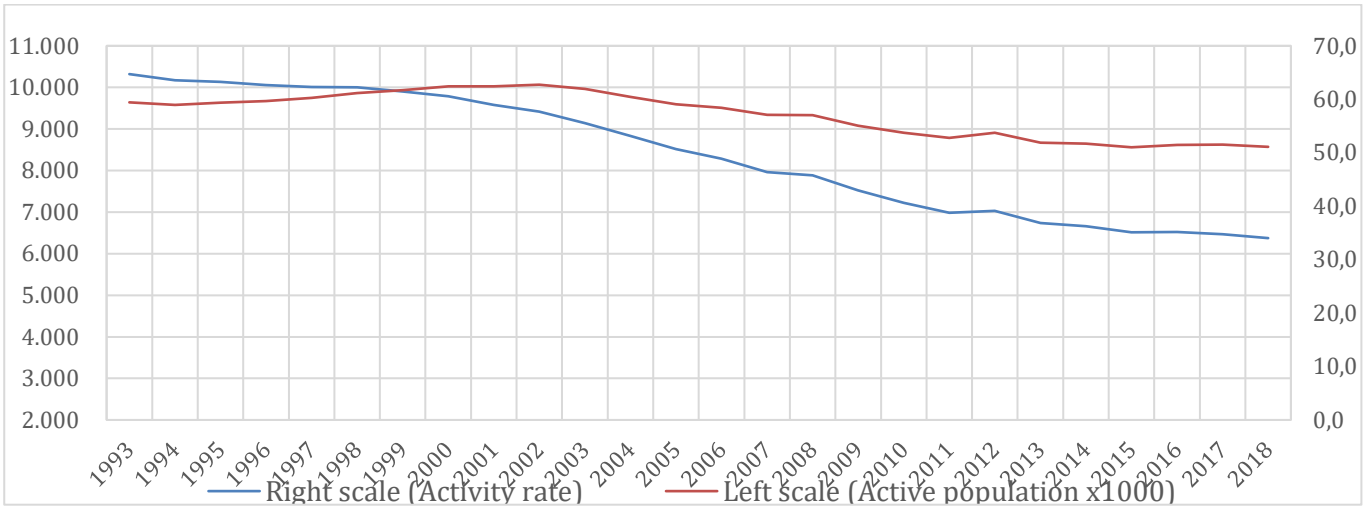


Source: Istat, data reported by Istituto Cattaneo.

[5] In 2016 an analogous intervention was put in place (Law 208/2015), the main differences laid in the amount of the rebate, that was lowered to 40% of the total social security cost as a maximum, and the time extension, 24 months, .

Demographic change, which has been accompanied by institutional change in the pension system, on one hand, together with youth cohorts' longer participation in education system and postponed entrance in labour market, on the other hand, give clues to analyse the decrease of their activity rate by comparison with elderly people's one (Figure 2).

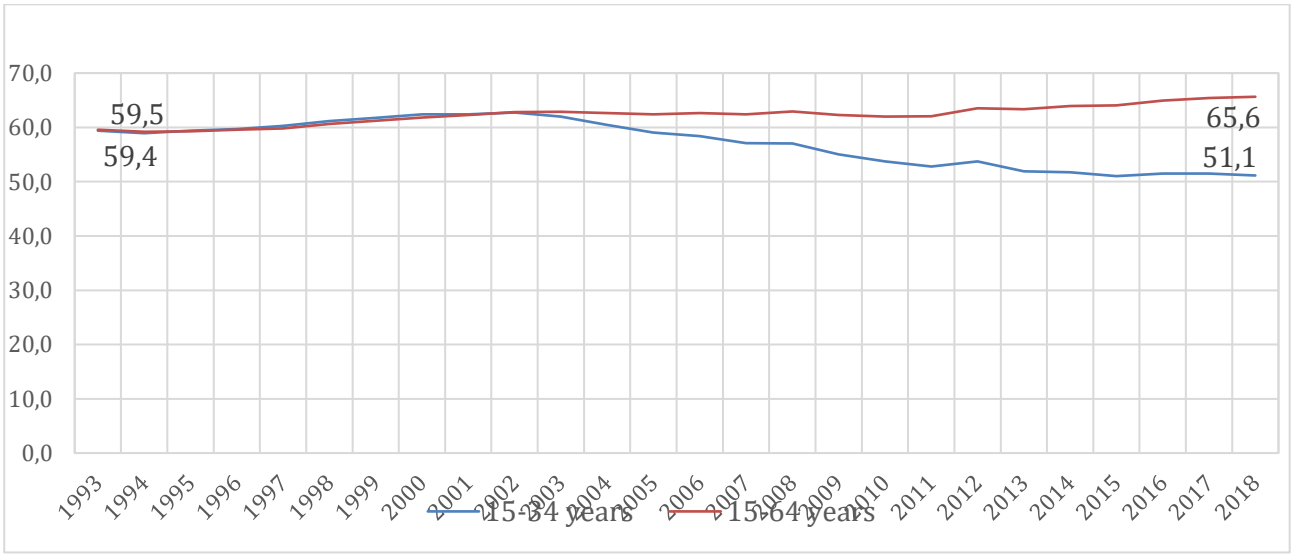
Figure 2 Active population and activity rate, 15-34 years. Italy



Source: LFS (Istat), data processed by Inapp

Due mainly to the demographic change and the reform of the Pension System, the activity rate of the Italian population 15-64 grows along the last decades. Notwithstanding youth activity rate decrease is consistent with longer stay of young people within the Education system before they get their first job, that partially explain the gap between the young and the elderly population (*Figure 3*).

Figure 3 Activity rate by age. Italy

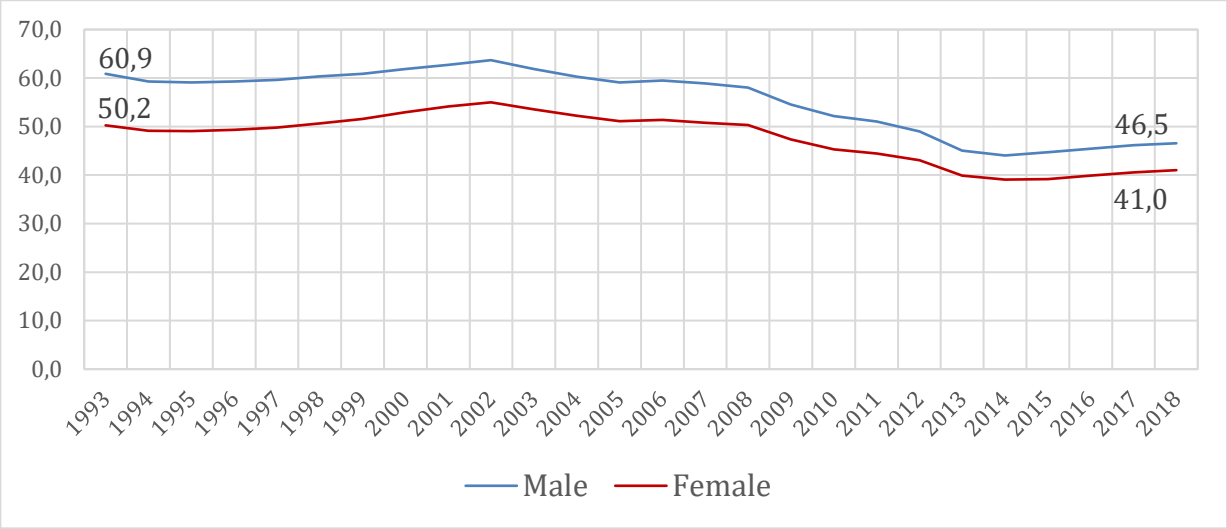


Source: LFS (Istat), data processed by Inapp

Italian low youth employment rate is a long-term structural trend which worsened during «the Great recession». The employment worsening was wider among youth male and this is the reason why the «gender employment gap» narrowed over the period (Figure 4).

The economic cycle and the labour market reforms ("Pacchetto Treu", 1997; "Biagi reform", 2001; "Legge Fornero", 2012; and "Jobs Act", 2014) also affected the trend of youth participation in the labour market in Italy during the last decades.

Figure 4 Employment rate by gender, 15-34 years. Italy



Source: LFS (Istat), data processed by Inapp

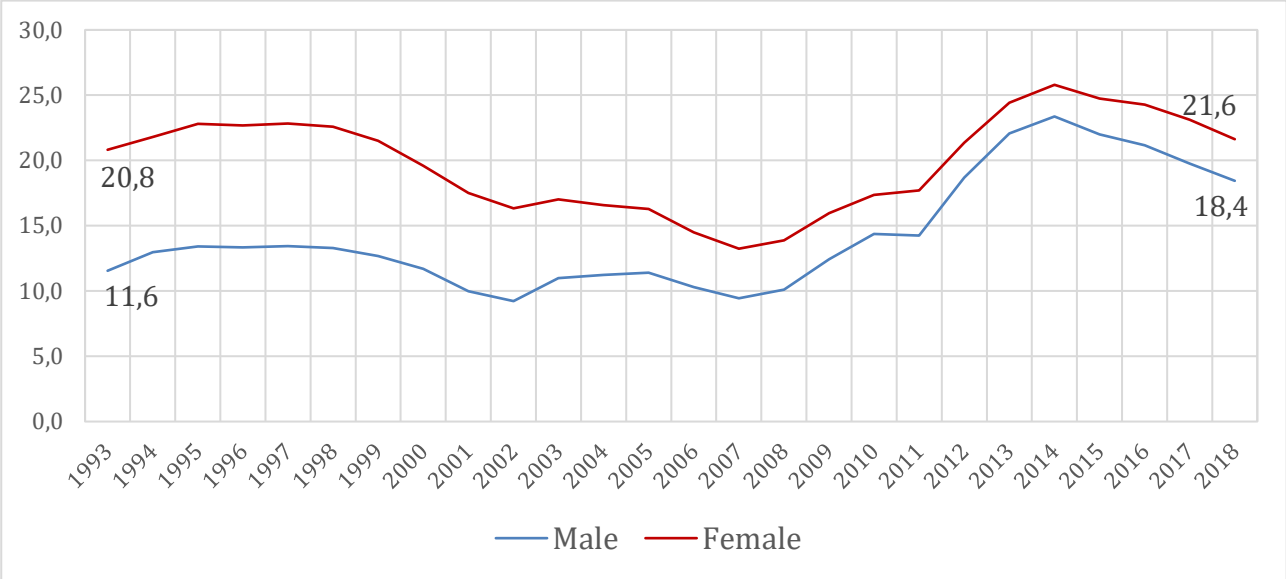
Those reforms where aimed at improving labour force performance in the labour market and reducing the mismatch between demand and supply by introducing greater flexibility and reducing the impact of Employment Protection Legislation (EPL).

Italian youth's high unemployment rate is also a structural trend. It deeply worsened during the Great recession. Often the mismatch between demand and supply in the labour market is regarded as a phenomenon to analyse on the supply side. But mismatch is a complex and multidimensional phenomenon: it can be seen as a structural problem of low efficiency of the Italian industrial system as well as referred to the luck of skills or educational levels: it can be measured with subjective (perceived) or objective indicators. In this respect Esposito and Scicchitano (2020a) show that

regardless of the type and the measurement method, mismatch is always more common among young people (20-35) than among old people (35-65).

The youth unemployment rate reached its historic peak during the Great Recession. The shock mainly affected the male component, while temporarily reducing the gender employment gap (Figure 4).

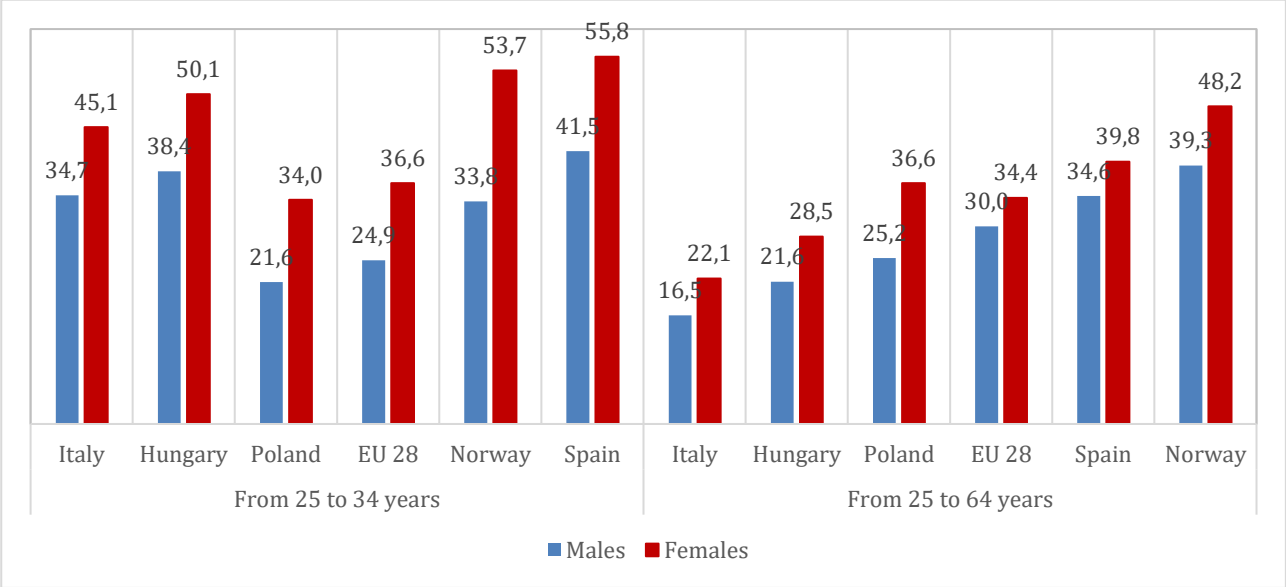
Figure 5 Unemployment rate by gender, 15-34 years. Italy



Source: LFS (Istat), data processed by Inapp

Looking at the main indicator of the investment in human capital - education and training outcomes, employment by sex, age and educational attainment level; Professional skills etc. - by comparison with other European Countries, the share of the Italian population with Tertiary education is among the lowest. Nevertheless, there has been an improvement among the cohorts over time, namely, in favour of young Italian women.

Figure 6 Tertiary education by gender, age class and Country, 2018 (%)

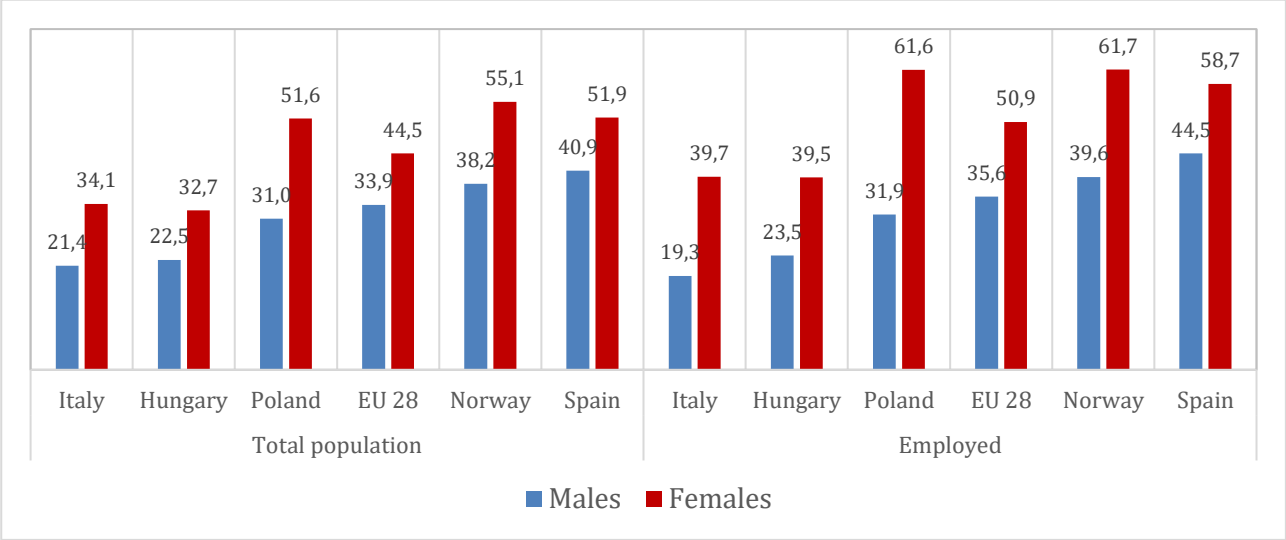


Source: LFS (Eurostat), data processed by Inapp

The lengthening of times in the school-to-work transition (SWT) process for young people in Italy is certified since long time (Caroleo and Pastore 2015, Pastore 2016, 2019). It holds also during periods of economic recovery, thus preventing the structural problem of long-term youth unemployment from being resolved (Pastore and Zimmermann 2019). Moreover, many young people enter the job market only with any high school diploma, also due to the high dropout rate (Aina et al., 2013, 2015, 2019). It has been shown that "delayed graduations and/or university dropouts, which are two sides of the same coin or two stages of the same decision" (Aina et al. 2019, p.5). The length of study may also be a significant determinant of vertical overeducation, in Italy (Aina and Pastore, 2012, Caroleo and Pastore, 2018). We observe a longer investment in education of male peers, since the last are on average more involved in post-graduate university courses.

Although the Italian youth employment rate is one of the lowest compared to other countries, previous studies (Bini M., Centra M., Cutillo A., Gualtieri V, 2012) and evidences show that it's worth studying, mainly for young women, since it contributes to bridge the occupational gender gap in the age group (Figure 7).

Figure 7 Employed: tertiary education by gender and Country, 2018 (%)



Source: LFS (Eurostat), data processed by Inapp

Previous researches evaluate reformed legal standards and hiring incentives. This study evaluates differential impact on young cohort by gender of two policies: Law 190/2014, rebates of non-wage labour costs and Decree 23/2015, under Law 183/2014, so called "Jobs Act", reduction of dismissal costs.

3.2. The impact of rebates on employment stability

A description of the main characteristics of the three-years social security rebates is provided by the Italian National Security INPS (2019, p. 90-97). The total number of work relations that has been target of the measure has been 1,509,126, 60% of the total number of open-ended employment contract activations. In terms of composition, the majority of subsidised contracts was made mainly by new contracts, 73.6%, while the remaining part, 26.4%, by conversions from temporary employment contracts. As far as firms are concerned, it covered 561,974 enterprises, between 29% and 40% of the total on the 2015-2018 window of time. The final cost of the measure was €16,703 mln. The INPS report finds that the rebate did not induce more stability to the open-ended employment contracts, but it surely increased the survival rate, which seems to be also positively related to the amount of the rebate. The survival rate of the subsidised contracts in 2015 was 54% higher than that of all the other contracts in the same period; considering firm dimension, larger firms displayed higher rates of survival compared to small firms, with both categories showing higher rates

for subsidised contracts compared to non-subsidised ones. The comparison with the previous year (2014) shows that even for individuals with the same eligibility condition as those targeted by the measure, the survival rate was higher in 2015. Overall, the increase was lower in 2016, period in which the rebate was lowered to 40% (when Law 208/2015 came into force[6]). Another finding of the INPS report is a spike in the dismissals for contracts reaching 36 months of maturity which seems to suggest that a fraction of the open-ended employment contracts worked as a temporary one as long as the incentive was in place.

The combination of the two policies has been evaluated by few studies in recent years. Sestito and Viviano (2018) analysed the effect of the policies in the Veneto Region (Northern East of Italy) by disentangling the effects of the two changes by means of a time difference in the introduction of the measures (1st January 2015 and 7th of March 2015 respectively for the hiring incentives and the new contractual arrangement *contratto a tutele crescenti* law, respectively). By means of a diff-in-diff model they found that the two policies were successful in reducing dualism and stimulating labour demand. The main driver of recovery was the hiring incentive that contributed by 5/6 to the doubling in the monthly conversion rate of employment contracts from fixed to open term and was responsible for 20% of the gross open-ended hires - against the 8% caused by the "graded-security" reform. The graded-security reform impacted on firms' willingness to direct-hire individuals with a open-ended employment contract without screening. Centra and Gualtieri (2017) counterfactual study at the national level found that the two measures have resulted jointly in an 10.5% higher number of activations of open-ended contracts compared to the counterfactual. Another study run by Cirillo, Fana and Guarascio (2017) found monetary incentives as main drivers of open-ended employment contracts dynamics, which was led by the conversions of temporary employment contracts to open-ended ones and by a large share of part-time jobs among the latter. New open-ended jobs increased in low-skilled and low-tech service sectors, while the opposite holds in manufacturing, in particular, in Northern regions. Vouchers and temporary jobs displayed increase diffusion among young cohorts in the same time-period of the reform. The above-mentioned evaluations are limited to the first year of the reform and could not consider the effectiveness of the stabilisation incentives which were the purpose of the policy.

In particular, it is central to understand the joint effect of cheaper stabilisation and flexible contracts on younger cohorts, to understand if they operated effectively on such a critical group which was the

[6] Legge 28 dicembre 2015, n. 208, Disposizioni per la formazione del bilancio annuale e pluriennale dello Stato (legge di stabilità 2016), 30 dicembre 2015, G.U.R.I. n. 302, S.O.

most affected by the Great Recession. The recent work by Ardito, Berton and Pacelli (2019) provides an analysis on a different Northern Italian region (Piedmont) and on a longer time horizon as it covers the whole story of the contracts up to the end of 2017. The study finds that small firms – i.e. with less than 15 employees – reacted more to the reduction in social security costs. On the contrary, large firms reacted less steadily to the incentive and it happened only when it was combined with lower firing costs: it seems that large firms still rely on longer probationary periods, usually formalised through temporary employment contracts, and then increase the use of both temporary and open-ended ones, once the firing cost reduction is introduced. Moreover, the benefits of the policies were unevenly distributed by citizenship, with Italian workers receiving more, compared to foreign ones. The same holds for skills, with the policies impacting more on individuals with low or general ones, while no gender effects are found. The findings of the paper support one of the provisional results given by the first joint report by Ministry of Labour and Social Policies *et al.* (2019), which underlined as **small firms and young individuals have been the main beneficiary of the hiring incentives**. The aspect that still lacks coverage is the latter, i.e. whether young cohorts have gained more than older ones from the incentives and the reform, which is the focus of our research.

4. Data

There are two main data sources already available from public administrative register: the *Sistema Informativo Statistico delle Comunicazioni Obbligatorie* (SISCO) and the *Campione Integrato delle Comunicazioni Obbligatorie* (CICO). SISCO organises the collection of all the notices that firms are compelled to send to the public authority when an activation, extension, conversion or end of an employment contract takes place.

The resulting data are longitudinal records of work relationships related to individuals. SISCO is based on the compulsory notices integrated system (*comunicazioni obbligatorie*, CO) that started its operations in 2008, managed by the Ministry of Labour and Social Policies, which coordinate the Regional Agencies in charge of the local maintenance and deployment.

It includes the entire population of the flows in and out of formal employment, as well as internal mobility and it is characterized by the high standardization typical of administrative databases. CICO is a sample of the compulsory notices, which report events of typical and atypical employment and integrates them with collaborative work relationships retrieved from the National Institute for Social Security (Istituto Nazionale della Previdenza Sociale, INPS).

The dataset used in this study is a sample of more than 2.7 million records which includes data related to the CO registered within the period between 2014 and 2015 (data from 2013 are processed further on in the study) referred to hires (employees with a open-ended contract) and firing (expired contracts of any kind) of individuals ranging from 15 and 34 years old eligible and not-eligible according to law 190/2014 ("Legge di stabilità 2015").

5. Empirical strategy / methodology

Definition of the treated and control groups. Identification strategy, definition of the outcome variables.

The counterfactual approach is aimed at evaluating the joint impact of the two policies on the incidence of the new open-ended employment contracts signed by young people 15-34 years old during 2015.

Looking at the selection process based on the eligibility criteria established in the laws under evaluation, it may be assumed that the two groups of eligible and non-eligible are not similar. The identification strategy in this study is based on a *diff-in-diffs* model (Card & Krueger 1994) applied to the contracts registered in the Ministry of Labour and Social Policies Data-Base (SISCO) referred to the communication sent by Employers due by law (COB), between 1st January 2015 and 31st of December 2015, compared to those registered the previous years.

According to the *diff-in-diffs* model, we define:

- two different groups (treated and controls): eligible and non-eligible
- two periods (before and after): 2015 and 2014
- the outcome: the share of new open-ended contracts caused by the presence of the two policies

The baseline differences between the two groups can be considered steady under the assumption of common trends, assuming that selection bias is constant over time.

According to the *diff-in-diffs* model, two different groups (eligible and control) have been defined[7] in order to estimate the added share of the new open-ended employment contracts signed during 2015 by young people 15-34 age old that would not have been signed in the absence of the two policies.

[7] As reported further on, we refer to *Eligible* and *Non-eligible* to the treatment.

The two groups definition were made by mean of one of the eligibility criteria.

Eligible (Treatment group):

- Young people hired with an open-ended employment contract (Apprenticeship excluded) during 2014-2015, by all kind of private employers (Farmer an Public Administrations excluded) who had not been employed with an open-ended employment contract expired within 6 months before the beginning of the new open-ended employment contract;
- all employers without industrial or geographical specificity. It includes associations and public enterprises but excludes public administration and agriculture.
- employers with no pending contributory arrears or any other irregular situation in terms of collective agreements or territorial agreements.

Non-eligible (Control group):

- Young people hired during 2015 who had been fired within 6 months before the beginning of the new open-ended employment contract while employed with an open-ended employment contract[8].

The identification strategy is structured in two stages:

I. In the first stage, it is estimated the incremental share of new open-ended employment contracts within the two groups registered between 2014 and 2015;
II. In the second stage, the share is applied to calculate the whole open-ended employment contract registered during the 2015 and estimate the effect of the public intervention over the number of the new contracts that would not have been in its absence.

The Counterfactual Impact estimated, since it refers to eligible people - according to the literature - is defined *Intention To Treat Effect* (ITT)[9].

Definition of the variables:

Outcome variable: the outcome is a Dummy, Y, with two possible values Y=1, for open-ended employment contract; Y=0, for temporary employment contract.

[8] According to the Law 190/2014, where not eligible also people hired during 2015 who in the 3 months preceding the reform (01.10.2014-31.12.2014) were fired by the same employer that hired them or by another employer related to the latter - to avoid opportunistic behaviours

[9] In this case, the Bloom Estimator is a correct mean to estimate the Average effect of Treatment on Treated (ATT).

Treatment variable: T=1, for open-ended employment contract which have been incentivized; T=0, open-ended employment contract which have not been incentivized.

Periods: P=0, 2014; P=1, 2015.

The outcome variable is defined as "the employers' propensity to hire with open-ended employment contracts". It is estimated as a percentage of the open-ended employment contracts over the total employment contracts registered during 2015.

The impact of the policies is estimated as a difference between the outcomes registered within the two groups between the two periods.

The simple ordinary least squares estimator, OLS, can be defined as it is reported in (1)

$$y = \alpha + \beta T + \gamma P + \delta TP + \bar{\lambda}\bar{X} + \bar{\xi}T\bar{X} + \bar{\vartheta}P\bar{X} \qquad (1)$$

Where the covariates $\bar{X}$, measured at the time of the hiring, include sex, age, highest educational attainment (ISCED), citizenship, region of residence (North-East, North-west, Centre, South-Isles), profession, type of contract (part-time of full-time), economic sector of the hiring firm (NACE), the percentage growth rate of quarterly added value per economic sector (NACE), referred to the latter quarterly following that at the hiring time.

The time series of the of quarterly added value per economic sector used refer to the latter quarterly following that at the hiring time in order to discount employers' expectation about growth at the time they decide to hire (*time-lag*).

The macroeconomic covariate exploits heterogeneity of the employment contracts throughout economic sectors combined to heterogeneity of the trends of any single economic sector growth rate (%), to reduce the both the selection bias and the maturation effects on Employers' propensity to hire young people 15-34 years old with open-ended employment contracts.

The covariates are introduced within the model to compare the hiring of eligible with those of non-eligible, under the assumption of common trends between groups.

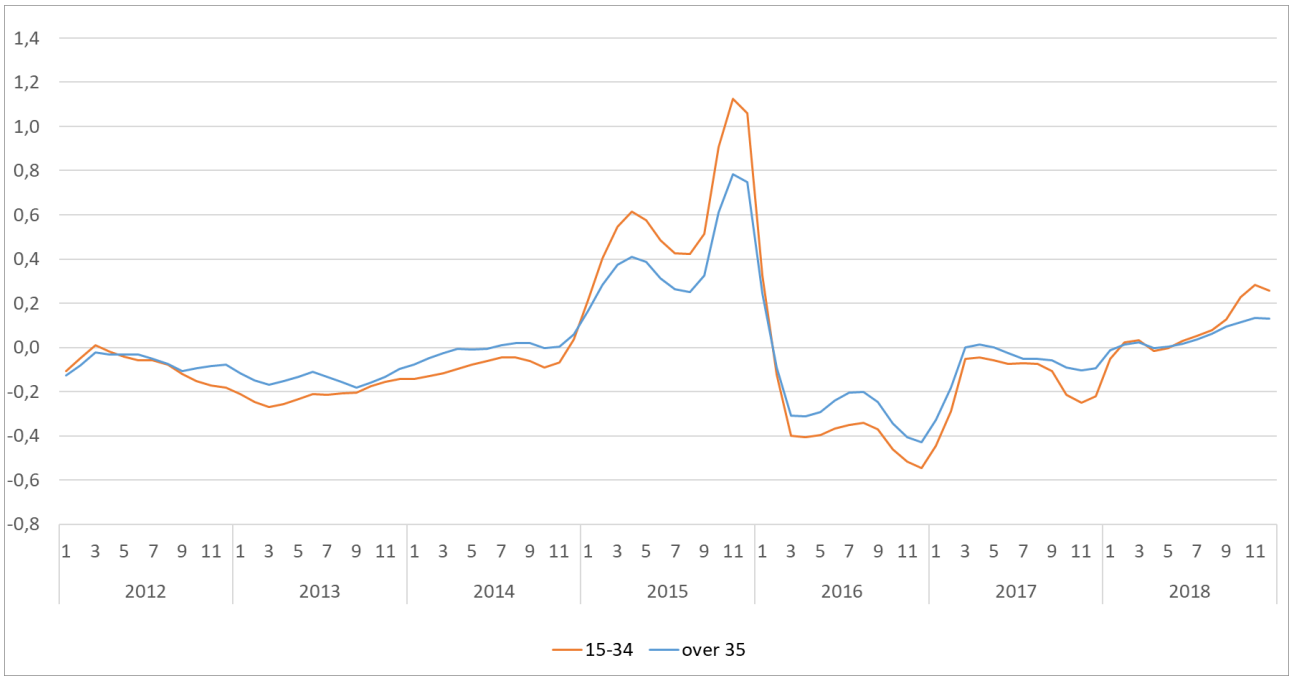
6. Results

The main findings from the analysis and the impact evaluation are presented here-after.

6.1. Descriptive statistics

The main findings from the analysis of the time series from 2012 to 2018 of the growth rate of the newly signed open-ended employment contracts - seasonally adjusted and processed by Inapp - show similar trends of the labour force as a whole vs. the young people 15-34 year old (Figure 8 Growth rate of new hires with open-ended employment contract: 15-34 vs over 35Figure 8).

Figure 8 Growth rate of new hires with open-ended employment contract: 15-34 vs over 35



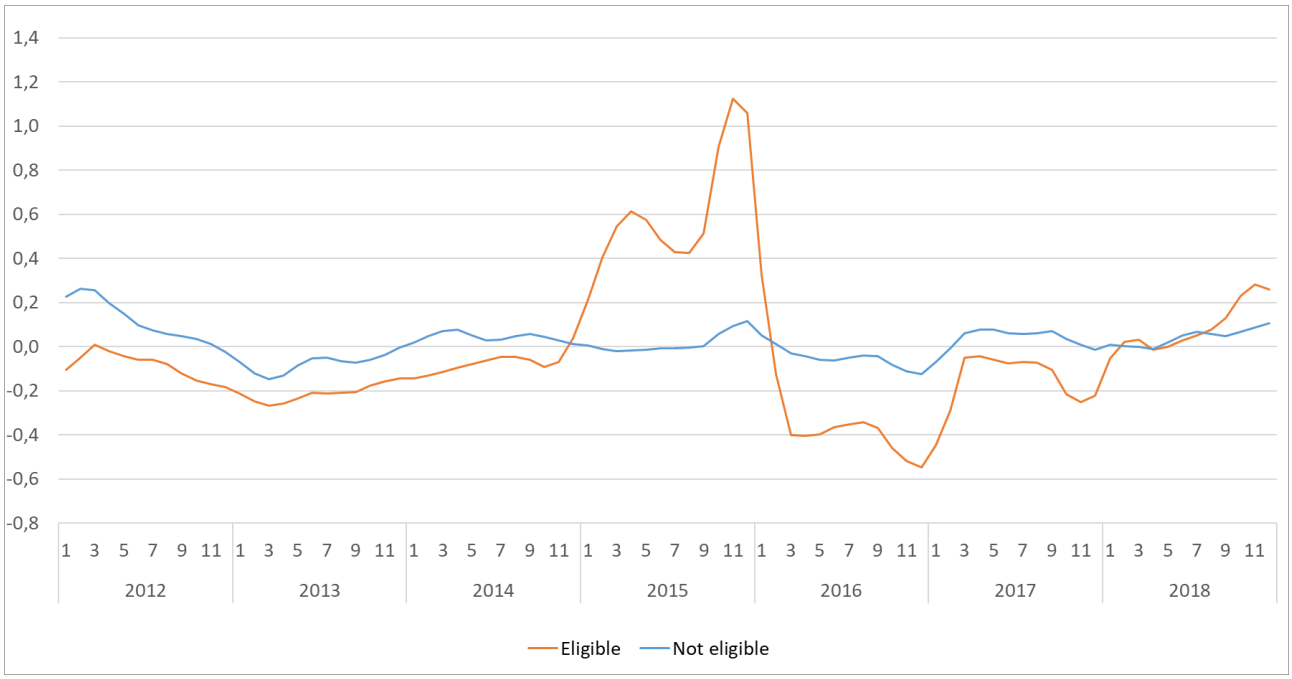
Source: Ministry of Labour and Social Policies (SISCO), data seasonally adjusted and processed by Inapp

As reported in the literature the main statistical labour market indicators always show that employment of young people worsens at faster speed during economic recession and grows at similar pace of general population in times of economic recovery. This was not the case during 2015, the time period when the policies where producing their effects on the Italian labour market: the new open-ended contracts growth rate was faster among young people 15-34 years old than among elderly ones. Although, for both groups the number of newly signed employment contracts sharply increased during 2015.

The time series from 2012 to 2018 of the growth rate of young people 15-34 year old, eligible and non-eligible (Figure 9), show actually different trends between the two groups: newly signed employment contracts sharply increased during 2015 for eligible, while the data show little differences in the trend for non-eligible, by comparison to the other periods.

These facts give us suggestions about the joint impact of the two policies under evaluation, if we may consider the not-eligible group as a control group for a counterfactual impact evaluation and their employment trend, what would have happen to eligible in the absence of the two policies under evaluation (net effect shown by non-eligible, net of "maturation" effects).

Figure 9 Growth rate of new hires with open-ended employment contract: eligible vs. non-eligible (15-34)



Source: Ministry of Labour and Social Policies (SISCO), data seasonally adjusted and processed by Inapp

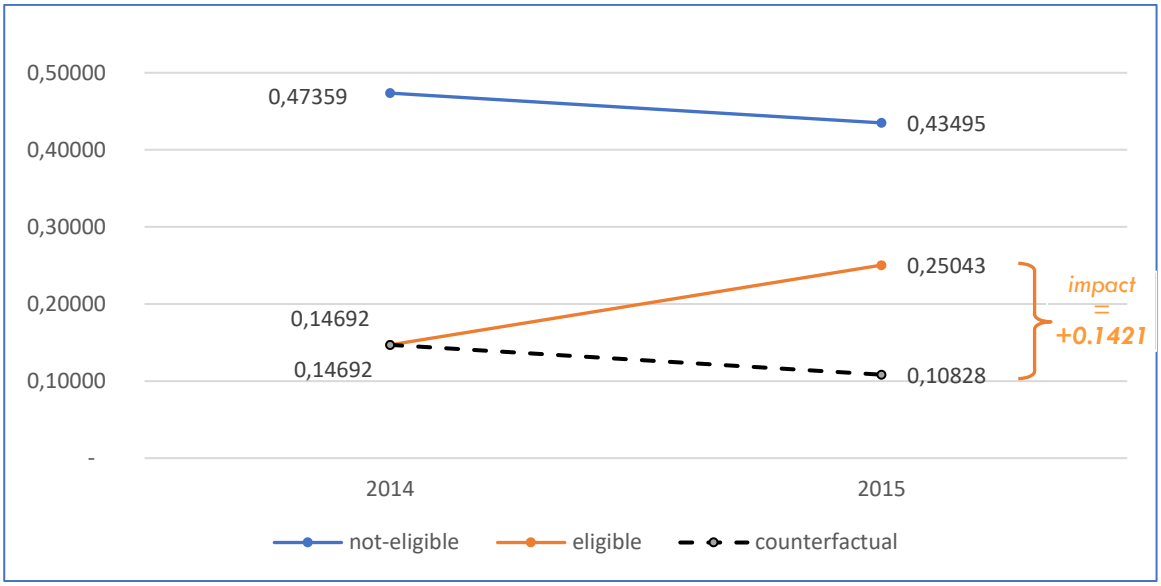
6.2. Evaluation results

This study first estimates an increased percentage of 14.21% of open-ended employment contracts of people among 15 and 34 years old that would not have been registered in the absence of the two public policies. The first results of the counterfactual impact evaluation of the policy on the outcome variables, is estimated with the "short model", that has been defined as:

$$y = \alpha + \beta T + \gamma P + \delta TP \qquad (2)$$

The parameter of interest is δ that represent the ITT effect, i.e. incidence of new hiring which would not have been registered among eligible without the two policies under evaluation.

Figure 10 CIE with Diff in Diffs



Source: Ministry of Labour and Social Policies (SISCO), data processed by Inapp

The estimated impact of the two policies on the outcome variables is +14.21%. This is the increased incidence of hiring of young workers with open-ended employment contracts caused by the presence of both the social security costs rebates (Law 190/2014, art. 1, c. 118) and the employers' expectation of reduced firing cost of employees (D. lgs n. 23/2015).

Table 2 Outcome variable distribution by groups and periods, Commas separate decimals; points/dots separate thousands.

y, by T P		P		*Diff (y, P)*
	y	0	1	
T	0	0,473588430	0,434950270	- 0,038638160
	1	0,146922220	0,250425070	0,103502850
DiDs				**0,142141**
y = outcome 0, if fixed-term employment contract; outcome 1, if open-ended employment contract;				
P = period 0, if 2014; period 1, if 2015;				
T = treatment 0, if open-ended employment **contract not-eligible**; treatment 1, if open-ended employment **contract eligible**				

Source: Ministry of Labour and Social Policies (SISCO), data processed by Inapp

The estimates bring to the result of an increased amount of 375.288 new open-ended employment contracts of young people between 15 and 34 years old over a global amount of 2.640.249 new open-ended hires that would not have been registered during the 2015 in the absence of the two policies.

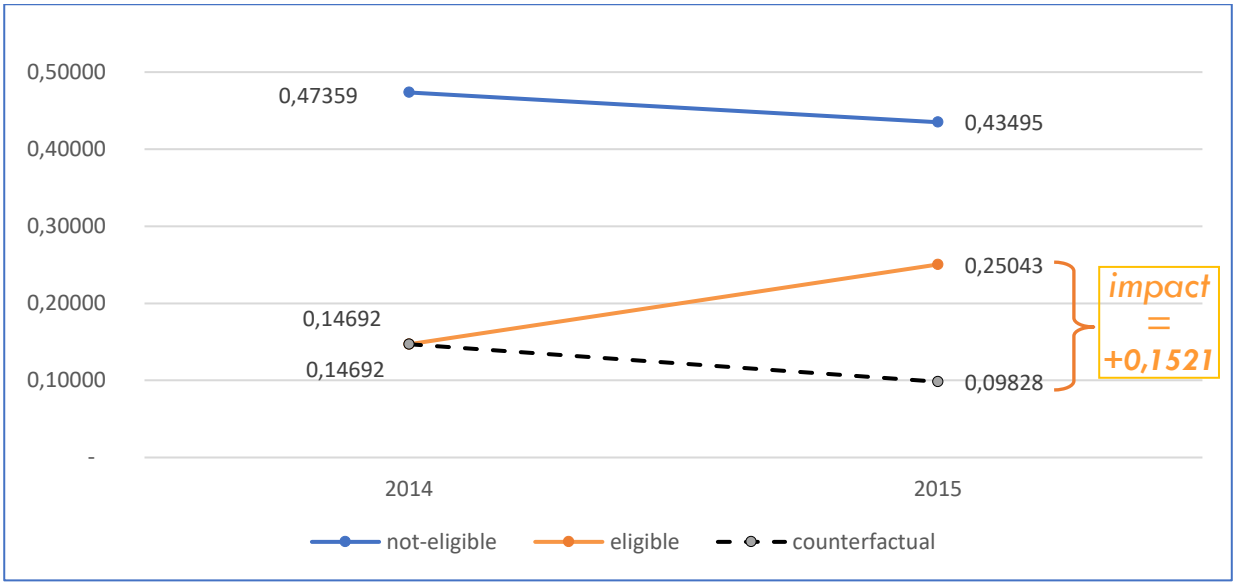
If the "long model" is defined to control the differences between the groups' composition by introducing covariates:

$$y = \alpha + \beta T + \gamma P + \delta TP + \bar{\lambda}\bar{X} + \bar{\xi}T\bar{X} + \bar{\vartheta}P\bar{X}$$

The new estimate for the ATT, δ. The impact of the two policies on the outcome variables using the model with covariates, introduced in order to reduce both the selection bias and maturation effects, rises to +15,21%, These are the estimates of the increased incidence in the hiring of young workers with open-ended employment contracts caused by both the social security costs rebates (law n. 190/2014, art. 1, c. 118) and the reduced firing cost of open-ended employees (D. lgs n. 23/2015) during 2015.

The estimates bring to the result of an increased amount of 401.706 new open-ended hires of young people between 15 and 34 years old as effect of the two policies, over a global amount of 2.640.249 new open-ended hires registered during the 2015.

Figure 11 CIE with Diff in Diffs and covariates



Source: Ministry of Labour and Social Policies (SISCO), data processed by Inapp

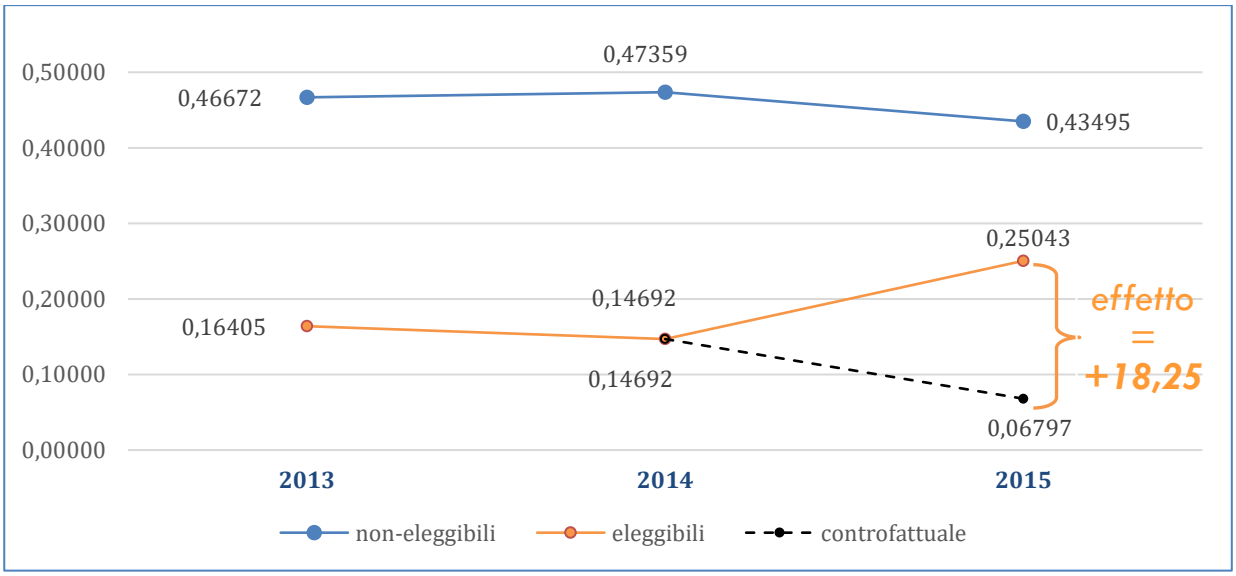
Lastly, in order to improve the control over maturation effects, the results have been checked also by comparing the two groups within the previous periods, 2013 - 2014, in order to control the assumption of Common trends, through a *diff-in-diff-in-diffs* model:

$$y = \alpha + \beta T + \gamma_1 P_1 + \gamma_2 P_2 + \delta_1 T P_1 + \delta_2 T P_2 + \bar{\vartheta}\bar{X} + \bar{\varphi} T\bar{X} + \bar{\lambda} P_1 \bar{X} + \bar{\xi} P_2 \bar{X} \quad (3)$$

Which brings to the estimate of the ITT, obtained as $\delta_2 - 2\delta_1$. The estimated impact of the two policies on the outcome variables rise to +18,25%. It is defined as the increased incidence of new open-ended employment contracts of young workers 15-34 years old caused by the presence of both the social security costs rebates (Law 190/2014, art. 1, c. 118) and the employers' expectation of reduced firing cost of employees (D. lgs n. 23/2015).

The result is consistent with the assumption made for the *diff-in-diff-in-diffs* model used in this previous CIE exercise.The estimates brings to the result of an increased amount of 481.728 new open-ended employment contracts of young people between 15 and 34 years old over a global amount of 2.640.249 new open-ended hires that would not have been registered during the 2015 in the absence of the two policies.

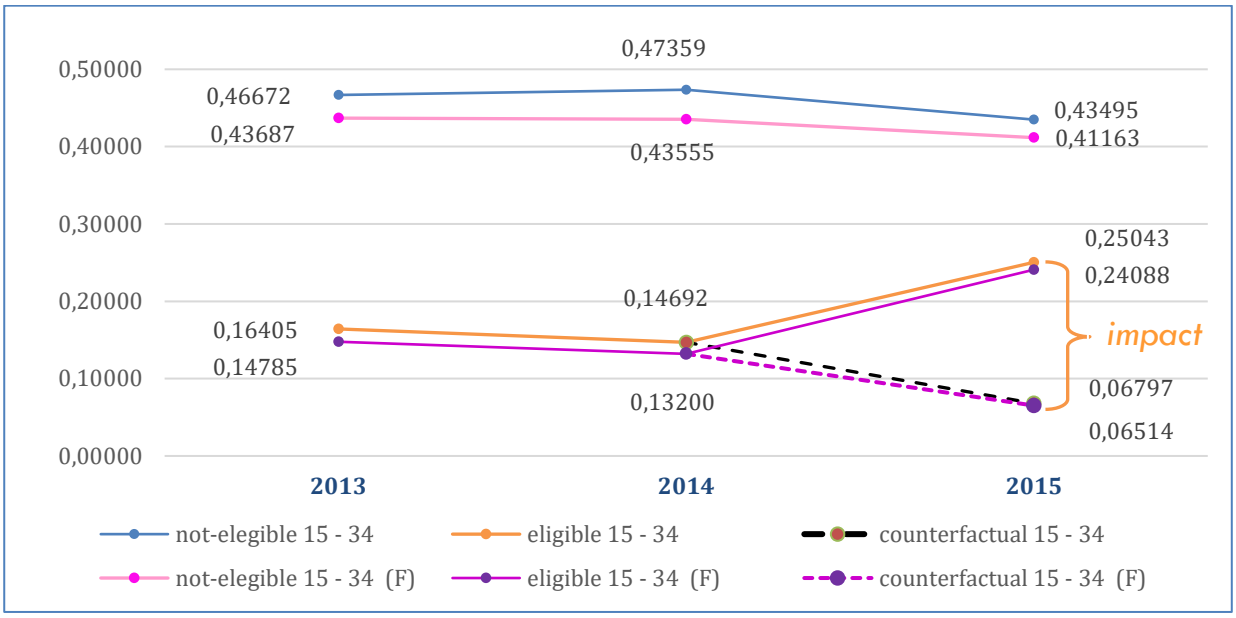
Figure 12 Common trends: 2013-2014 vs 2014-2015



Source: Ministry of Labour and Social Policies (SISCO), data processed by Inapp

The presence of the two policies, the social security costs rebates (Law 190/2014, art. 1, c. 118) and the employers' expectation of reduced firing cost of employees (D. lgs n. 23/2015) in Italy during 2015, had a positive impact over the workforce which, according with previous evaluation studies available in literature, might have been stronger over the young individuals 15-34 years old. The estimated impact of the two policies on the outcome variables for women is +17,57%.

Figure 13 Common trends and impact by gender: 2013-2014 vs 2014-2015

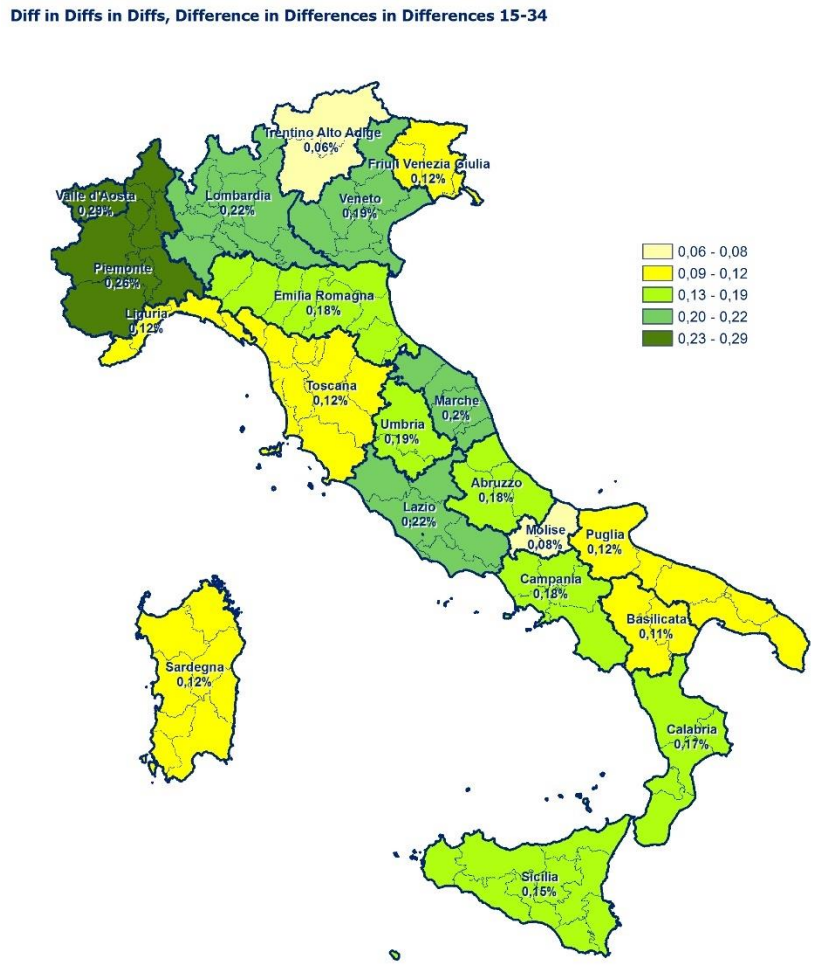


Source: Ministry of Labour and Social Policies (SISCO), data processed by Inapp

Given the high structural heterogeneity of the Italian economy along the 20 Regions the expected impact differs throughout the areas, but it is hard to find evidence of a common *driver* which may explain the heterogeneity of the impact of the two policies. In other words, we can find the effect of the cause, but we do not see the causes of the effect.

These findings suggest further analysis to be carried in order to evaluate the impact on each of the twenty regions. We will probably find more maturation effects at regional level than we have found at national one. We will probably have to carry out in Italy twenty specific different studies if we need to isolate the effect of the two national measures.

Figure 14 Estimates by Italian Administrative Regions



Regione	DiDiD 15-34
Valle d'Aosta	0,295
Piemonte	0,260
Lombardia	0,223
Lazio	0,222
Marche	0,203
Veneto	0,195
Umbria	0,187
Emilia Romagna	0,180
Abruzzo	0,176
Campania	0,176
Calabria	0,175
Sicilia	0,155
Liguria	0,123
Puglia	0,121
Sardegna	0,117
Friuli Venezia Giulia	0,116
Toscana	0,115
Basilicata	0,111
Molise	0,079
Trentino Alto Adige	0,060

Source: Ministry of Labour and Social Policies (SISCO), data processed by Inapp.

Neither it is easy to find evidence of a gender biased effect of the two policies, nor when it is estimated by region.

7. Conclusions and recommendations

"The goal of increasing the number of open-ended contracts can be pursued in different ways, acting on the supply side or on the demand side—that is, either on workers or on employers." (Battiloro V., Mo Costabella L., 2011).

The Italian National Report is aimed at evaluating the impact on youth employment of two selected *demand side* public policies, through a counterfactual approach inspired by the famous "Card and Krueger" (1994) exercise but using administrative register instead of surveys data.

According to our estimates, **the presence of** both the **social security costs rebates** (Law 190/2014, art. 1, c. 118) and the **employers' expectation of reduced firing cost** of employees (D. lgs n. 23/2015) in Italy **increased by +18.25% the incidence of newly signed open ended contracts** among young people 15-34 years old during 2015.

The CIE estimates a number of 481.728 newly signed open-ended contracts signed by young people 15-34 years old that would not have been signed if the two policies had not been introduced.

Given the high structural heterogeneity of the Italian economy along the 20 Regions the expected impact differs throughout the nation, but it is hard to find evidence of a common *driver* which may explain the heterogeneity of the impact of the two policies. Neither it is easy to find evidence of a gender biased effect of the two policies estimated impact, nor when estimated by region.

The presence of the two policies, the social security costs rebates (Law 190/2014, art. 1, c. 118) and the employers' expectation of reduced firing cost of employees (D. lgs n. 23/2015) in Italy during 2015, had a positive impact over the workforce which, according with previous evaluation studies available in literature, might have been stronger over the young individuals 15-34 years old.

The benefits of the policies were unevenly distributed by Regions, but there is no evidence of a common driver which can explain the heterogeneity, while no gender effects are found, neither by Region.

No recommendation emerges from this study that is worth generalizing to policymakers, unless in case the economy is recovering from a long period of deep recession such as that experienced during the second decade of the new millennium.

List of acronyms

ATECO, Classification of Economic Activity, based on Nace Rev. 2. https://www.istat.it/en/archivio/17959

ATE, ATT: Average Treatment Effect and Average Treatment Effect on Treated: A treatment effect is the causal effect of the (a treatment binary, 0–1 variable) on an outcome variable of scientific or policy interest. It captures the difference between the potential outcome of a population unit with and without the treatment (exposure to the policy, taking part in a specific programme, etc.) There are two major concepts of the average treatment effect. The ATE shows the population expectation of the treatment average difference in the pair of potential outcomes averaged over the entire population of interest. This is the relevant measure, if the the entire population is can be exposed to the policy under consideration.

ATE=E(Y_i (1)-Y_i (0))

Where Y_i (1) is the outcome of the unit i when she receives the treatment and Y_i (0) is the is the outcome of the unit i when she does not receive the treatment.

The ATT, Average Treatment effect on Treated shows the average of the treatment effect over the subpopulation of the treated:

ATE=E(Y_i (1)-Y_i (0)|D_i=1)

CP2011, Italian Classification of Professions (Nomenclatura e classificazione delle Unità Professionali. https://www.istat.it/it/archivio/18132

CO, COB, notices that firms are compelled to send to the public authority when an activation, extension, conversion or end of an employment contract takes place, Comunicazioni Obbligatorie on-line, managed by the Ministry of Labour and Social Affairs (Law n. 296, 27 december 2006 (Financial Law 2007).

D. lgs, Decreto Legislativo, Legislative Decree.

DID, Diff in Diffs, Difference in Differences.

EPL, Employment Protection Legislation.

ISCED, International Standard Classification of Education. https://ec.europa.eu/education/international-standard-classification-of-education-isced_it

INAPP, Istituto Nazionale per l'Analisi delle Politiche Pubbliche, National Institute for Public Policies Analyis.

INPS, the Italian "National Istitute of Social Security", "Istituto Nazionale di Previdenza Sociale".

ITT, Intention To Treat.: shows the effect of the policy on the eligible population. In other words, it shows us the causal effect of the offer of treatment. If not all members of the eligible population receive but many of those will decline it, the ITT will differ from the average treatment effect.

L., Legge, Law.

OLS, Ordinary Least Squares.

MLPS, Ministero del lavoro e delle politiche sociali, Ministry of Labour and Social Policies.

NACE, Nomenclature statistique des activités économiques dans la communauté européenne - Statistical classification of economic activities in the European Community, Rev. 2 (17 NACE Rev. 2, groups of economic activities). https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NACE_REV2&StrLanguageCode=IT&IntPcKey=&StrLayoutCode=HIERARCHIC

OLS, Ordinary Least Squares.

PES, Public Employment Services.

RDD: regression discontinuity design.

S.E.S., System of Employment Services (both public and private).

SISCO, Statistical System of the Italian register "Sistema Statistico delle Comunicazioni Obbligatorie" on-line del Ministero del lavoro e delle politiche sociali (MLPS), Ministry of Labour and Social Affairs (MLPS).

T.D., Fixed term employment contract, Tempo Determinato, riferito ai contratti di lavoro dipendente.

T.I., Open Ended Employment Contract, Tempo Indeterminato.

V.A., Added Value, valore aggiunto.

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Appendix

A note on the Italian institutional framework

Italy is a democratic Republic. According with the Italian Constitution, roles and competencies which belong respectively to the Central Government and to the regional and local administrations (20 Regions, 107 Provinces and 8.100 local authorities) are different.

The State has exclusive legislative powers over most of the main issues, including general rules on education and the setting of minimum service levels (Article 117 of the Constitution). Five Regions (Trentino-Alto Adige, Friuli-Venezia Giulia, Valle d'Aosta, Sicily and Sardinia) have special status and are given greater autonomy under the Constitution in various areas including education. The Trentino-Alto Adige Region, moreover, has two autonomous provinces (Trento and Bolzano) which in turn have considerable autonomy over education and vocational training.

The Regions have 'exclusive' legislative powers over vocational education and training, apart from tasks connected with the European Union, and parallel legislative powers over general education, although the State is responsible for deciding the basic principles. In fact, Law no. 3 of 2001, reformed the Title V of the Constitution. In particular, art. 117 makes a distinction between: a) general education, which falls under the exclusive competence of the State as for general rules, essential levels of performance and fundamental principles of legislation at regional level; b) vocational education and training, which falls under the responsibility of the Regions, although the essential levels of performance remain under the responsibility of the State Provinces and local authorities provide school buildings and infrastructure, and carry out tasks in the area of adult education and guidance, including the management of employment services. According to Eurostat, Italian population in 2019 is over 60 million, with a population increase mainly due to the migratory flows occurred in Italy during the last decades, thus balancing in a certain way birth decline and the ageing of population.

Credits

Chapters 1,4,5,6,7

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