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Regional disparities in the functioning of the labour markets

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Abstract

Human capital has become a very important issue in modern economies in the last decades. Among the different definitions of human capital accumulation, vocational training stands out as one of the main topics. Local labour markets, defined as the region where people work, can constrain the set of human capital investment and the consequent permanent employment opportunities that people face. Even, people with the same characteristics, excepting region, can obtain very different permanent employment outcomes depending on where they work. This issue is estimated for Italy.

Keywords: Human capital; permanent employment; local labour markets.
Jel Classification: J24, J21.

1 Introduction

The role of human capital is one of the main issues in modern societies. It can be defined as the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being. Gender, family, education, or social class are usually found in the literature among background characteristics that can constrain human capital accumulation, thus likely provoking poor labour market performances. Nevertheless, place of work is one of the personal characteristics that deeply affect future labour market prospects. The influence of place in inequality of permanent employment outcomes replicates the discussion between the comparison of territorial factors and personal ones. There are some characteristics of the regional labour markets that make being either unemployed or a temporary worker more serious. Permanent employment chances and economic dynamism differ between regions. Therefore, it is critical to consider the existence of regional disparities in the analysis of the importance of a human capital investment in facilitating the permanent employment prospects of individuals.

This paper contributes to this research line and estimates to what extent regional disparities in the access to vocational apprenticeship (training) limits and affects people's labour market outcomes. To perform this analysis I use a very rich administrative dataset, by the Italian Ministry of Labour and Social Policies, *CICO* (the so-called *Comunicazioni Obbligatorie*). Focusing on Italy is interesting because Legislative Decree no.167/2011 introduced a common nationwide institutional setting that fixed the rules governing the vocational apprenticeship labour contract. Despite this common legislative setting, regional disparities persist and amplify following the introduction of law no.92/2012 that increased the commitment to training and general education provision of the vocational apprenticeship labour contract.

I assume that the data generating process of the permanent employment rate is related to the legal rule that in Italy a job entry as vocational apprentice is only available, albeit not mandatory, up to 29 years and 364 days of age. I am focusing on vocational apprenticeships as a labour contract committed to the provision of on the job training and of general education courses outside the firm. The role of apprenticeships as part of the vocational education and training system, alternative to a more academic education track, is here neglected. In Italy vocational apprenticeship is classified as a permanent labour contract. This yields to a discontinuity in the permanent employment rate around the cutoff of 30 years of age that is related to the apprenticeship labour contract only. The introduction of law no. 92/2012 has exogenously manipulated this data generating process. This is because the law explicitly targeted apprenticeships as the main port of entry into permanent employment. A mentoring scheme was introduced to strengthen the vocational training component of the job. This rule was complemented by a future punishment to the firm that avoided to maintain on a permanent basis at least 30% of those hired as apprentices three years before. This setting allows me to design a difference in discontinuity regression model. While the discontinuity at the age threshold could appear as mechanical, there are not reasons to expect a mechanical difference in discontinuity impact on permanent employment. Since this variation around the cutoff of 30 years of age is randomised, it is independent of any covariate in the regression model, including the indicator of the location of work. I estimate whether the permanent employment probability gains of cohorts treated by the labour market reform, around the age cutoff, differ across regions of work. Hence, this paper adds to the literature the analysis of regional disparities in this difference in discontinuity impact. By estimating whether there are regional differences, it contributes to illustrate how the regional labour markets evolve. Moreover, it provides evidence on the role of informational asymmetries in firms' sponsored vocational apprenticeships. This mechanism can be generalised to other countries.

Regional disparities in different economic outcomes are widely studied in the literature (Carmignani and Giacomelli 2009, Amendola, Caroleo and Coppola 2006, Signorini 2008, Checchi and Peragine 2010, Taylor and Bradley 1997, Righi, Nuccitelli and Barbieri 2019). Some of these outcomes are related to the functioning of labour markets. This paper verifies whether regional permanent employment patterns are related to differences in the access to vocational apprenticeship. This analysis differs from the few existing studies using data at regional level, e.g. (Brunello and De Paola 2008, Muehlemann and Wolter 2008, Bellmann, Hohendanner and Hujer 2010), in three crucial aspects. First, exploiting a randomised variation, this paper overcomes one of the major

problem that has to be faced when analysing regional differences in labour market outcomes: the region of work is not exogenous. Employers can decide where to locate their economic activity. Employees can migrate if there are not good employment opportunities in the region where they were born. Second, the main outcome is the individual's permanent employment probability and how it is related to the apprenticeship probability rather than the training decision of the firm. Third, there is no paper that verify whether there are regional disparities in the medium-run effect on permanent employment of the initial human capital investment. By looking at the dynamics, the paper provides an important evidence on the main argument of the paper. The probability that a job match, created by a vocational apprenticeship contract, persists over time is higher than the same probability of other job matches created without the same commitment to the human capital investment. The existence of dynamic treatment effects reinforces further the credibility of the identification strategy because although apprenticeships are open-ended contract the monetary costs of terminate the contract are lower than those incurred by the firm in case of a permanent contract that does not enforce human capital accumulation. Law no.92/2012 did not directly intervene on this issue. Consequently, there are no reason to observe a mechanical difference in discontinuity impact in the medium-run.

I find that the capacity of the vocational apprenticeship labour contract to serve as a stepping stone into permanent employment differs across Italian region both in the short and in the medium-run. Moreover, medium-run gains can come out even in absence of any impact at the baseline.

The rest of the paper is organised as follows. Section 2 outlines the institutional setting. Section 3 illustrates the identification strategy while section 4 describes the data. Results are reported in section 5. Finally, section 6 concludes.

2 Institutional setting

Constitutional law n. 3 of 18 October 2001 brought substantial amendments to Title V of the Italian Constitution. It enhanced the powers of the Regional Governments and institutionalised the principle of the autonomy of the educational institutions. Education is included among the matters of concurrent legislation between the State and the regions. The State is exclusively responsible for general norms and sets fundamental principles. In fact, the State determines the general educational goals and it reviews the performance by evaluating whether the results obtained in the school system meet the requested standards. The State is also in charge for allocating financial and human resources to the educational institutions. The regions are responsible for building activities, educational assistance, programming how to integrate the vocational training and the school systems.[1] As a result, exclusive power to legislate over vocational training is given to the regions.

Law no 30/2003 and legislative decree no. 276/2003 reformed the rules governing the apprenticeship contracts. The traditional contract (apprenticeship for vocational qualifications and diplomas, upper secondary education diplomas and high technical specialisation certificates), that can be assimilated to a vocational and education training programme, was complemented by a new form of apprenticeship, vocational apprenticeship. The reform introduced also a third type, the higher education and research apprenticeship. However, the use of this third kind of apprenticeship is quite limited. An apprenticeship for vocational qualifications and diplomas, upper secondary education diplomas and high technical specialisation certificates contract cannot be signed by individuals older than 25 years of age. Instead, the age limit of vocational apprenticeship was extended to 29 years and 364 days. The minimum length of the apprenticeship contract is six months. The maximum length of the contract is three years, although there could be some exceptions. This implies that there are individuals aged more than 30 working as apprentices. That is, the rule sets the age limit to job entries as apprentices but it does not fix the length of the contract that is discretionally determined by the firm. Since 2008 apprenticeship labour contracts in Italy are legally recognised as open-ended contracts while they were previously considered fixed-term. Nevertheless, the costs of terminating the contract are lower for apprenticeship.

[1] Merger and closure of schools and the organization of the school systems, including the use of buildings and materials, are instead competencies assigned to local governments.

Cappellari, Dell'Aringa and Leonardi (2012) exploit the variability across regions and across sectors to show that the 2003 apprenticeship reform had an overall productivity enhancing effect. In fact, to accomplish with these new normative requirements, regional governments had to issue regional regulations. Although, in general, regions were slow in fulfilling this task, some regions implemented the legislation earlier than others. (Autonomous Province of Bolzano in Trentino Alto Adige, Emilia Romagna, Friuli Venezia Giulia, Marche, Puglia, Sardegna, Toscana). Besides, there was a certain degree of heterogeneity in the contents of these regional regulations. As a consequence, law no. 247/2007 started the process that culminate with legislative decree no. 167/2011, of establishing a common regulation across all regions. Based on this common regulation, law no. 92/2012 reformed further the apprenticeship labour contract. Three aspects of the law are relevant. Two of them are expected to have a direct and intended impact on the probability of vocational apprenticeship. First, the law enforced a mentoring scheme that might have increased the worker's productivity. Second, the law introduced future restrictions on hiring apprentices on the firms which do not accomplish with the commitment of employing permanently at least 30% of the apprentices employed in the previous 36 months (with the exception of motivated lay-offs). On the one hand, this punishment increases the worker's value of apprenticeship and discourage the production-oriented, in favour of the investment-oriented, usage of the apprenticeship contract. On the other hand, since the punishment is in future it is unlikely that it has fully discouraged production-oriented firms to benefit of the current tax debate associated to the apprenticeship contract. Third, the law increased the social security contributions burdened on temporary contracts while keeping fixed the tax rebate on the apprenticeship contracts.

Given this common institutional framework, I focus on whether or not exist regional disparities on the capacity of the vocational apprenticeship labour contract to create job matches that persist over time. This aim is achieved by setting the design that follows.

3 Identification strategy

I start by assuming that the data generating process of the vocational apprenticeship rate builds on the legal rule that, in Italy, job entry as apprentice is only available, albeit not mandatory, up to 29 years and 364 days of age. Therefore a deterministic process of the apprenticeship rate on one side of the cutoff of 30 years is observed. As a consequence the data generating process of permanent employment rate displays a discontinuity around this age threshold. On the top of that, I expect that the introduction of law no. 92/2012 has exogenously manipulated this data generating process. This setting allows to design the following difference in discontinuity regression model:[2]

$$y_{i,t} = \alpha_0 + \alpha_1 k_{it} + \gamma_1 d_{it} k_{it} + \gamma_0 d_{it} + \epsilon_{i,t} \tag{1}$$

where $y_{i,t}$ is the outcome for individual i at time (year, month) t; k_{it} is an indicator function which takes the value of 1 if the individual, given her age and year of birth, is treated by law no. 92/2012 and d_{it} is an indicator function that takes the value of 1 if the person is aged less than 30 years.[3]. This implies that I am comparing those who are aged 29 with certainty and are turning 30 with those who are aged 30 with certainty and are turning 31. In what follows, I will consider as outcomes y: the employment probability, the permanent employment probability and the apprenticeship probability.

Equation 1 amounts to a polynomial of degree zero in age regression model. This a restriction imposed by the data. As discussed in the following section 4, I have information on the individual's year of birth only. Hence, in the age range ± 1 year around the threshold, the indicator function d_{it} is perfectly collinear to the variable *age*, measured as deviation from 30. This implies that in my

[2]Preliminary analysis, presented in the on-line Appendix shows that, around the age threshold, a *local* linear model specification fits the data. In this on-line Appendix I also briefly sketch how to derive, in the age range of ± 1 year around threshold, this model specification using the potential outcomes framework.

[3]Equation 1 refers to a restricted linear model specification. In fact, since the analysis is restricted to the range of ± 1 year of age around the cutoff, it is not possible to include both the forcing variable, age, (parameterised as deviation from 30) and the indicator function for being under (above) the age threshold.

data in the age range ±1 year around the threshold (but only in this age range), the difference in discontinuity regression model coincides with a difference in differences model specification where the common trend assumption trivially holds. This is because, the difference in the discontinuity around the cutoff of 30 years of age, generated by the labour market reform, creates a source of randomised variation. In fact, since the forcing variable, age (i.e. the indicator function d), is observed, there is little room for discretion from an identification standpoint. The only choice is to estimate the expectation of the outcome, y, conditional on the forcing variable age, (i.e. d), on either side of the cutoff before and after the introduction of law no. 92/2012. The interpretation of the Intention To Treat, (ITT), parameter, γ_1, simplifies to measuring to what extent, around the age threshold, the outcome of interest changes for individuals treated by law no. 92/2012 compared to similar individuals born in contiguous cohorts, who reached the threshold age before the introduction of the law. This is very appealing for two reasons. First, it allows to avoid to take strong stance about which covariates to include in the analysis. In fact, the design predicts that the observable covariates are irrelevant and unnecessary for identification.[4]

Second, within the design, all the relevant factors are controlled for and the crucial assumption that no omitted variables are correlated with the treatment is trivially satisfied. When the individual's age is lower (higher) than 30 the intention to treatment dummy, d, is always equal to 1 (0). Conditional on age (i.e. d), there is no variation left in the assignment into intention to treat. It cannot, therefore, be correlated with any other factor. This implies a conditional independence assumption with respect to the individual's region of work and generates a suitable environment to estimate whether regional disparities in vocational apprenticeship probability exist and to estimate to what extent these differentials translate into regional disparities in permanent labour contracts. Apprenticeship differ from formal education. Whether to enroll or not at school (university) depends entirely on the individual's will. Instead, while it is a fact that everyone ages, it is also a fact that signing a vocational apprenticeship labour contract is an event that is imprecisely controlled for by both individuals and firms. For this reason there are some individuals with the same characteristics who are apprentices while others are not. This explains why this setting generates a randomised source of variation and why the conditional independence assumption holds. I will discuss in more details this issue in subsection 4.2.

Regression model 1 is, therefore, augmented to allow for heterogenous effects across regions:

$$y_{i,t} = \alpha_{1r} + \alpha_1 k_{it} + \gamma_1 d_{it} k_{it} + \gamma_0 d_{it} + \gamma_{1r} d_{it} r_{it} + \gamma_{1r} d_{it} k_{it} r_{it} + r_{it} + \epsilon_{i,t} \tag{2}$$

where r_{it} are the regional dummies which corresponds to the individual's region of work.

Equation 2 represents the main model specification for estimating the parameter γ_{1r} that measures the static and instantaneous at the baseline ITT effect which is specific to each region. I then extend the analysis to a dynamic setting. The following regression model takes into account the persistency in outcome generated by the exogenous shock of the reform at the age threshold[5] and allows to retrieve the dynamic ITT parameter:

$$\begin{aligned} y_{i,t} = \alpha_{1r} + \alpha_1 k_{it} + \gamma_1 d_{it} k_{it} + \gamma_0 d_{it} + \beta_{1r} d_{it} r_{it} + \gamma_{1r} d_{it} k_{it} r_{it} + \\ + \phi_\tau \Big(\sum_{\tau=1}^{\tilde{\tau}} (\alpha_1 k_{i,t-\tau} + \gamma_\tau^{TOT} d_{i,t-\tau} k_{i,t-\tau} + \gamma_0 d_{i,t-\tau}) + \\ + \phi_\tau \Big(\sum_{\tau=1}^{\tilde{\tau}} (\gamma_\tau^{TOT} d_{i,t-\tau} k_{i,t-\tau} r_{i,t-\tau}) + \epsilon_{i,t} \end{aligned} \tag{3}$$

To stress the mechanism provided by the literature on the role of asymmetric information in firms' sponsored training, I investigate whether the impact on the labour outcomes is different for

[4] In general, this does not hold true for the difference in differences model specification.

[5] That is to say that I expect that if job entry as apprentice serves as stepping stone into permanent employment, in the months following the baseline, the current permanent employment position depends also on the permanent employment position at the baseline which in turn is related to the impact of the labour market reform around the age cutoff.

those who were born in the same region where they work compared to the effect on those who migrate to that region. The static regression model is the following:

$$y_{i,t} = \alpha_{1r} + \alpha_1 k_{it} + \beta_0 a_{it} + \gamma_1 d_{it} k_{it} + \gamma_0 d_{it} + \beta_{1r} a_{it} r_{it} + \gamma_{1r} d_{it} k_{it} r_{it} + r_{it} + \\ + \beta_{1r} a_{it} r_{it} l_{it} + \gamma_{1r} d_{it} k_{it} r_{it} l_{it} + l_{it} + \epsilon_{i,t} \tag{4}$$

where l_{it} is an indicator function which takes the value 1 if the individual is born in the same region where she works.[6]

I, then, decompose further the effect for those who migrate distinguishing between neighbouring and non-neighbouring regions. The aim is to provide evidence that while living or coming from a neighbouring region reduces mobility costs, migration is not a solution for reducing the informational asymmetries costs.

4 Data

4.1 Description of the data

Data are taken from a very rich administrative dataset by the Ministry of Labour and Social Policies, *CICO* (the so-called *Comunicazioni Obbligatorie*). In a given year, for each cohort of birth, the dataset gathers all individuals who are born on the 1st, the 9th, the 10th and the 11th of each month. It includes, since 2009, detailed information on the flow of all job contracts, activated, transformed and dismissed, for dependent and independent (individuals with VAT number) workers for all sectors including the Agricultural sector and the Public Administration. The relevant dates (day, month, year) of each event are available in the database together with the type of labour contract, the sector, the region of work and an anonymous identifier for both the firm and the worker and the type of benefit associated to the contract, if granted. For each worker, I have information on the gender, the year of birth, the region of birth, citizenship and education. Since 2008 apprenticeship labour contracts in Italy are legally recognised as open-ended contracts while they were previously considered fixed-term. For this reason, some firms register this contract as open-ended since the first working day while others register it on the basis of the vocational training period. As a result, it is not possible to observe for all individual the timing of transition from the vocational training to the non-training period. Since it is possible to terminate the vocational apprenticeship contract, the occurrence of this event amount to losing the permanent job position.

The working sample is centered in a ± 30 months interval around June 2012 when law no. 92 was issued. This implies that those treated (untreated) by the reform are those who reach a given age between July 2012 to December 2014 (January 2010 to June 2012) ending up with two and half affected and unaffected cohorts. Since there is not precise information on the date of birth of the individual, to minimize measurement error in the definition of age, the latter is measured at the 31st December of the previous year. [7]

I start from restricting the age interval of ± 5 years around the age threshold. After this selection the sample includes $39,216,787$ observations involving 1,015,069 workers and 693,662 firms. In the same age range, considering only those who started either a job spell or a self-employment activity[8] in a given year, the sample is made of 11,874,149 observations involving 649,525 individuals and 500,514 firms. The working sample considers only those who started in a given year either a job spell or a self-employment activity in the age range ± 1 year around 30 and amounts to $2,132,899$ observations gathering 168,542 individuals and 152,225 firms.

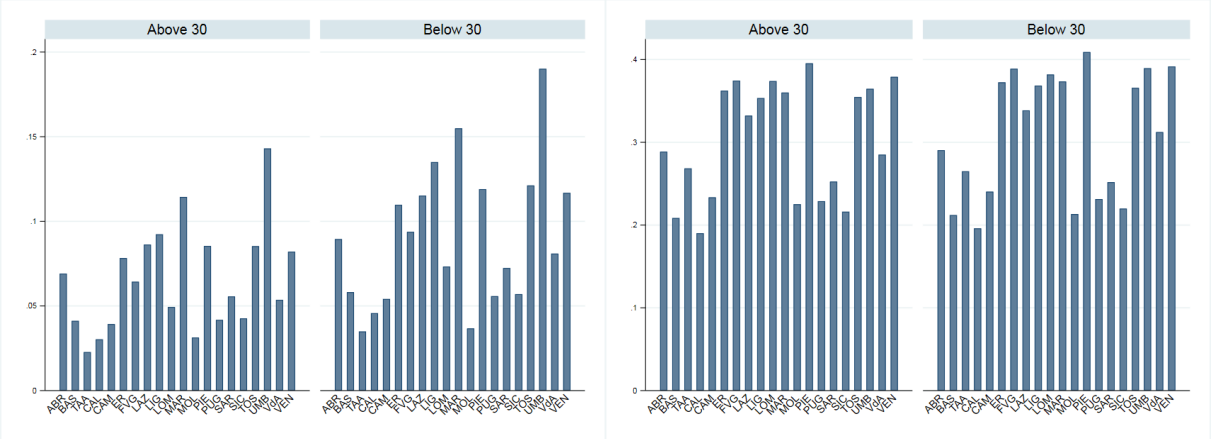
Figure 1 displays the incidence of the apprenticeship probability, permanent employment probability and employment probability across Italian regions without. This incidence is calculated for

[6] To provide a comprehensive view of the issue, I consider also the dynamic version of equation 4 which amounts to equation 3 augmented by the dummy l_{it} and its interaction terms.

[7] That is to say, for example, that in 2010 an individual is aged 29 with certainty if she is born in 1980 and she is turning to 30 in an unknown month during that year.

[8] I have information on self-employment activities by merging CICO data with two datasets recording self-employment and independent jobs episodes in the professional orders.

the entire sample period (i.e. January 2010-December 2014) considering all job spells even those which started in previous years.



(a) Apprenticeship probability

(b) Permanent employment probability.

Figure 1: Incidence of labour market outcomes across Italian Regions.

Continuity of potential outcomes is usually an untestable assumption. Since the apprenticeship labour contract can last more than one year, the apprenticeship rate is not equal to zero above the age cutoff in this sample. Hence, this plot provides suggestive evidence that this hypothesis holds in my data. Just above and below the age threshold, there are large differences in the incidence of these indicators of the functioning of the labour market across Italian regions, except for the employment probability that displays smaller disparities.[9]

Vocational apprenticeship and permanent employment probability are much lower in Southern regions. This framework sets the premises of the empirical analysis whose aim is to verify whether the 2012 reform has had a differential impact on the regional labour markets. If this is the case, despite the same governing rules, the capacity of the apprenticeship labour contract to create permanent job occupations differs across Italian regions. In what follows, I provide some preliminary analysis that supports the credibility of my results.

4.2 Preliminary analysis

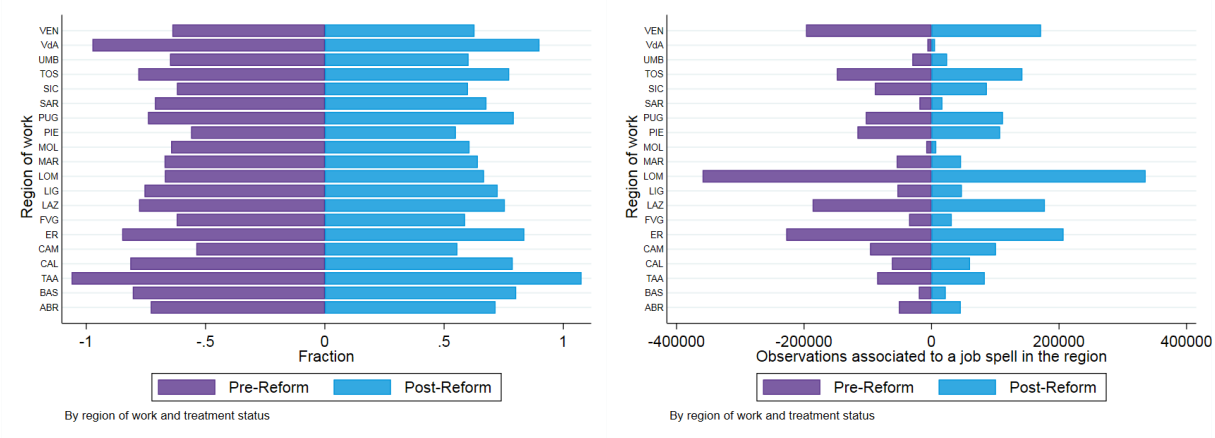
I start by presenting suggestive evidence on the absence of strong compositional change of the working sample before and after the labour market reform.

Panel (a) of Figure 2 depicts for each region of work the share of the number of individuals in the working sample over the residential population in the ± 1 year around the age threshold of 30 between January 2010 and December 2014.[10] This quota could differ across regions for three reasons. First, because labour market participation is quite heterogeneous. Second, because the age profile in the access to the labour market is not homogenous.[11] Third, if the migration process is not similar. The ratio is higher than 1 in Trentino Alto Adige suggesting that there are workers inflows. It is instead quite low in Campania where there might be outflows of workers. Panel (b) of the Figure considers the migration process from another perspective. It illustrates the region where foreign workers migrate. Foreign workers migrate most to Northern and Central regions. This is expected since it is a well known stylised fact that the labour market is more dynamic in

[9] For the sake of ensuring adequate dimension to each graph, I report all figures for the employment probability in Appendix A1.

[10] Data on the residential population are census data from the Italian Statistical Office.

[11] CICO data are representative of the universe of job flows but they do not account for the stock of job episodes. This implies that I cannot observe those who have permanently (without losing the job in the observed period from 1 December 2009 to 30 June 2017) entered in the labour market before 2009.



(a) Share.

(b) Distribution of those born abroad.

Figure 2: Regional distribution of the number of individuals in the working sample.

the Northern and Central part of Italy. All in all, the Figure shows that pre- and post-reform cohorts are quite balanced out.

Figure B1, reported in the on-line Appendix B1, gives a sense of the importance of the phenomenon of migration of Italian workers across national regions. It displays the regional distribution of workers by region of birth. In all regions, the highest frequency is associated to those working in the same region where they were born. Southern born individuals migrate to the Centre-North of Italy while those born in the Northern and Central regions migrate towards the neighbouring regions. As expected, migration is a larger phenomenon for those born in the South. It is confirmed that pre- and post-reform cohorts are balanced out. This is reassuring and it suggests that the migration process is independent from the labour market reform around the age cutoff.

Compared to other empirical strategies, the difference in discontinuity design fits better to pursue the main objective of the paper. I carry out two preliminary tests to validate the empirical model. These tests are reported in the on-line Appendix A1.

First, when implementing the difference in discontinuity design, this study relies on age based cutoff. Following Lee and Card (2008) I use parametric regression to estimate the conditional expectations of the outcome variable (the apprenticeship probability, the employment probability and the permanent employment probability) at the cutoff point comparing treated and untreated cohorts by extrapolation. The discreteness of the assignment variable provides a natural way of testing whether the regression model is well specified by comparing the fitted model to the raw dispersion in mean outcomes at each value of the assignment variable. As suggested by Lee and Card (2008) I present a goodness of fit statistics which tests whether the restricted model (e.g. polynomial regressions with restriction imposed by the discreteness of the age variable provided in the data) is statistically identical to the unrestricted model where a full set of dummies (one for each value of the assignment variable, age) is included. Here standard errors are clustered by age and year of birth. The lower the value of the test than the critical value, the higher the confidence on the validity of the estimated effect. All the tables, illustrated in the on-line Appendix A1, clearly show that for each region and for each outcome of interest a (local) linear model specification is always supported by the data when the sample is restricted to an age range ± 1 year around the threshold. There is not, instead, an homogeneous data generating process across regions and within region across outcomes when the age range is enlarged. In fact, a second (third or fourth or even higher, but imposing some restrictions on the all possible interaction terms since the regressors are highly collinear) order polynomial in age is necessary when the sample is extended to the age range $\pm 2(3)$ years around the cutoff.

Second, I examine whether the observed baseline covariates are locally balanced on either side of the age threshold before and after the introduction of the labour market reform. This should be the case if the treatment is locally randomised. I consider the following observable

characteristics: gender, region of birth, education and an indicator for missing information on education, past experience and an indicator for missing information on past experience, an indicator of changing sector with respect to the previous job, an indicator of regional mobility and a bulk of dummy variables capturing the position of the job episode in the age specific distribution of some characteristics, measured in a given month and year, such as the number of multiple job spells; the number of job separations; the number of net job flows (hirings minus separations), the number of job episodes which benefitted of hiring incentives, a reduction of labour costs or social insurance benefits.

For each region of work, I report the Tables which show that, with very few exceptions, in the age range of ± 1 year around the cutoff, differences in discontinuity of the covariates are statistically equal to zero. That is, overall the covariates are balanced out and continuous at the threshold implying that there is not precise control of the assignment variable, the age at which the apprenticeship labour contract is signed.[12] This evidence amounts to say that the unconditional independence assumption must hold in the data. Individuals and firms know in advance that the vocational apprenticeship labour contract cannot be signed at 30 years of age or more. If they could perfectly control the timing and the possibility to be apprentices, the observed (and unobserved) characteristics of those aged just below and just above the cutoff would differ. Hence the covariates could not be balanced out.

The discreteness of the age simplifies the problem of the bandwidth choice when graphing the data. In fact, I can simply compute and graph the difference in means between treated and untreated cohorts of the outcome variable for each value of the discrete assignment variable. The graphical analysis is important since it gives a rough sense of the relationship and the shape of this relationship between the assignment variable, the individual's age, and the difference in the outcome variable before and after the labour market reform. It thus indicates what functional form is likely to be supported by the data. In fact, considering the age range of ± 1 year, the linear regression model fits very well the data since the estimated parameter perfectly matches the raw data. Because of space constraints (I have to plot this relationship for three outcomes in each of the 20 regions of work) these graphs are reported in the on-line Appendix A1. They reveal the existence of an instantaneous difference in discontinuity positive impact on the apprenticeship probability for the large majority of the Italian regions. The exceptions are Basilicata, Trentino Alto Adige, Molise, Sardegna, Umbria and Valle d'Aosta. The difference in discontinuity detected for the apprenticeship labour contract translates in the majority of the cases into difference in discontinuity for the permanent employment probability. The figures confirm the goodness of the parametric fit of the (local) linear regression in the range of ± 1 year of age around the cutoff. Overall, there is not clear graphical evidence of a difference in discontinuity effect on the employment probability. These figures constitute the bulk of the static empirical analysis which sets the premises for the estimates of the dynamic impact.

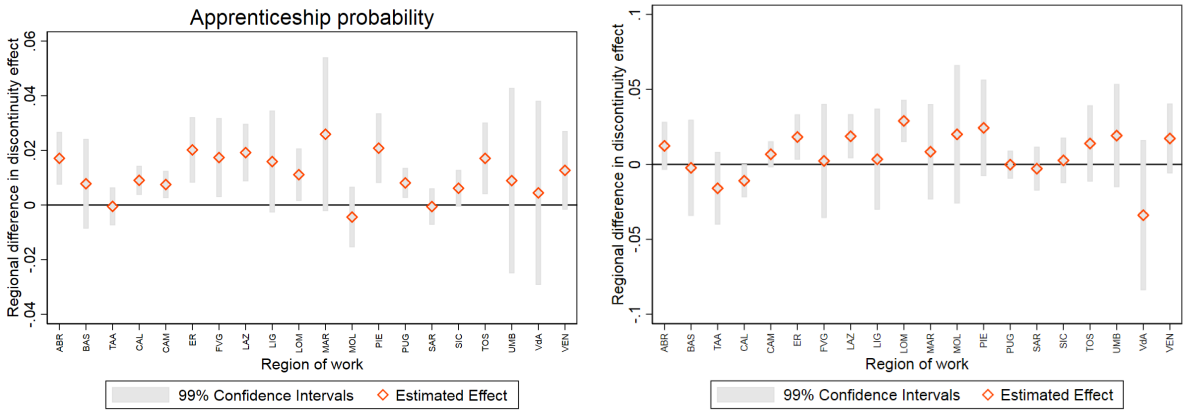
The working sample excludes those who have started working or a self-employment activity, in previous year(s) and those who were unable to have a job spell, even of one day, in a given year. This is because the discontinuous age requirement refers to the entrance into apprenticeship. I replicate the previous graphs including also these individuals. Since a crucial assumption of the difference in discontinuity design is the continuity around the threshold of the potential outcome, I expect that the age profile of the apprenticeship labour contract is continuous because it can last more than one year. In fact, there is no indication of a discontinuity around the age cutoff when individuals who are not working or who have started working in the previous year(s) are included.

[12] Worries on precise sorting are related to the age at which job entry as apprentices occurs (if occurs). The same assumption on the other source of random variation is trivially satisfied. In fact, individuals cannot have precise manipulation over their year of birth.

5 Estimation results

5.1 Static model accounting for differential impact across regions

The estimated coefficients on the apprenticeship and permanent employment probability match the difference in discontinuity in raw data illustrated in the figures reported in the on-line Appendix A1. In fact, with the exceptions of Basilicata, Trentino Alto Adige, Molise, Sardegna, Umbria and Valle d'Aosta the instantaneous impact is positive and statistically significant at 0.05 level.[13]



(a) Apprenticeship Probability

(b) Permanent Employment Probability

Figure 3: Difference in discontinuity: differential impact across regions of work

In the on-line Appendix, I report for each region a Table whose columns correspond to different model specifications of Equation 2[14] ranging from a regression model where only region of work and region of birth dummies are included (column 1), to regression models which add further baseline characteristics: time fixed effects (month and year dummies in column 2); sector fixed effects (column 3); firm fixed effects (polynomial of degree 1 in the employer identification code in column 4); time invariant characteristics (column 5) and time-varying baseline characteristics (column 6). Time invariant characteristics are the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education and past-experience. Time varying characteristics are a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past-experience is higher than the 75th percentile of the past-experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells in a given month and year is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations, in a given month and year, higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations), in a given month and year, higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted, in a given month and year, of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age, a dummy if the job episode benefitted, in a given month and year, of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age, and finally a dummy if the job episode, in a given month and year, gained from social insurance benefits more than the 25th percentile of the corresponding distribution at a given age.

[13] In Figure 3, I compute the 99% confidence intervals to delimit the shaded area.

[14] The regression model is always estimated using the working sample made of $2,132,899$ observations. The region specific effects are estimated using the interaction terms.

The estimated instantaneous impact on the apprenticeship probability goes from about 2.6% for Marche to 0.6% for Sicilia.[15] Overall, the estimated coefficients and standard errors[16] are quite stable across all model specifications. There is more heterogeneity across regions on the estimated impact on the permanent employment probability. At the baseline of entrance into the labour market, the permanent employment rates of treated individuals increases from 0.6% (Campania) to about 2 percentage points (Lazio and Emilia Romagna) above the permanent employment rates of similar untreated individuals. In some regions, the positive instantaneous impact on the apprenticeship probability translate to an almost corresponding difference in discontinuity impact on the permanent employment probability. This is the case for Abruzzo, Campania, Emilia Romagna, Lazio, Piemonte and Veneto. However, in other regions, such as Friuli Venezia Giulia, Liguria, Puglia, Sicilia, Toscana, the effect on permanent employment is not statistically different from zero and it is even negative and statistically different from zero at 0.05 level in Calabria. Moreover, it could seem puzzling that the difference in discontinuity impact on permanent employment probability in Lombardia is larger than the estimated effect for the apprenticeship probability. In principle there could be a larger jump at the threshold if the permanent employment rate of those aged 30 and untreated by the labour market reform would be higher than the corresponding rate of similar individuals affected by the reform. However, the graphical analysis clearly shows that this argument is not supported by the data. Legislative decree no 76/2013, issued in June, introduced an incentive to hire on a permanent basis individuals aged less than 30 years. However, age was not the main requirement. Individuals had either to be unemployed in the previous six months or had to have a dependent family member. Resources devoted to finance this hiring incentive were limited and administered by the regional governments. Therefore, the timing and the intensity of the firms' response to this policy intervention vary across regions. Month and year dummies and an indicator function, capturing whether the individual sits above the 25th percentile of the age distribution of recipients of hiring incentives, are not able to disentangle the impact at the age threshold on the cohort affected by both law no 92/2012 and legislative decree no 76/2013 from the difference in discontinuity effect on the cohort affected by law no 92/2012 only. As a matter of fact, the introduction of time fixed effects reduces sampling variability while the estimated coefficient is quite stable across model specifications. This is the expected consequence of the randomised variation generated by the 2012 labour market reform at the age cutoff. If the ITT impact on permanent employment is entirely related to this randomised source of variation I do not expect an effect which is statistically different from zero on the employment probability. Legislative decree no 76/2013 introduced a discontinuity at the age threshold not only in the permanent employment probability (through apprenticeships) but also in the employment probability targeting those who were at least 6 months unemployed.[17] Overall, there is not a statistically different from zero impact on the employment probability. All these estimated effects are displayed in Appendix A1. The exceptions are Calabria, Lombardia, Piemonte, Toscana and Umbria whose static ITT parameters on the employment probability are positive and, albeit rather small, they are statistically different from zero at 0.1 significance level. The effect on the employment probability is instead negative in Sardegna and Valle d'Aosta (at 0.1 significance level).

This evidence suggests that there is considerable heterogeneity across regions on the type of labour contract used to enter in the labour market on a permanent basis. In some regions the apprenticeship labour contract serves as the main port of entry, while in others it seems to play a relevant but not exclusive role. To provide a comprehensive view, it is important to look at the dynamic effects.

[15] However, for the subset of regions, where the ITT static parameter on the apprenticeship probability is positive and statistically different from zero, the confidence intervals mostly overlap.

[16] Standard errors are clustered at age, year of birth and region of birth level to account for possible autocorrelation in the environment where the individuals were born.

[17] There is, instead, no evidence that this Legislative Decree could have increased, at the age cutoff, the rate of conversions from temporary to permanent contracts. In fact, there are no statistically different from zero effects on the permanent employment probability conditional on the firm for which the individual last worked. These results are available upon request from the author.

5.2 Dynamic model accounting for differential impact across regions

A statistically different from zero medium-run impact can be estimated even in absence of an instantaneous effect. This occurs if the labour market reform has improved the quality of the apprenticeship labour contract. In fact, law no 92/2012 has strengthened the commitment of the contract on the training provided.

To underline and discuss the main results, I will focus on the ITT parameters after 12, 24 and 30 months from the baseline on the apprenticeship probability, on the employment probability and on the permanent employment probability.[18]

Figure 4 shows that Molise is the only region where a positive difference in discontinuity impact on the apprenticeship probability is never estimated. In all the other regions, over time, the apprenticeship probability of those treated by the labour market reform at the age cutoff, is higher than the same probability of similar untreated individuals. The existence of a tax rebate for apprenticeships can not explain these medium-run positive effects. In fact, the tax rebate was also present before the labour market reform. Yet, these findings could possibly indicate that the commitment to providing vocational training and general education has increased. Consequently, the human capital component of the apprenticeship labour contract has risen leading to a moderate medium-run impact on the permanent employment probability. In fact, with the exception of Calabria and Molise, the medium run ITT parameters on the permanent employment of all the other regions after 12, 24 and 30 months from the baseline is positive and statically different from zero. In contrast, overall there is no medium-run effect on the employment probability.[19] After 30 months from the baseline, the permanent employment probability of those treated at the age cutoff, increased from about 11% in Trentino Alto Adige to 3.2% in Puglia, compared to the same probability for similar untreated individuals. Evidence from Trentino Alto Adige seems to indicate that the labour market reform could have affected not only the quantity but also the quality of the human capital component of the apprenticeship labour contract. In fact, any statistically different from zero effect on permanent employment probability is detected at the baseline, while the medium-run impact is much larger than the same impact in other regions (e.g. it is about 7.3% in Lombardia).

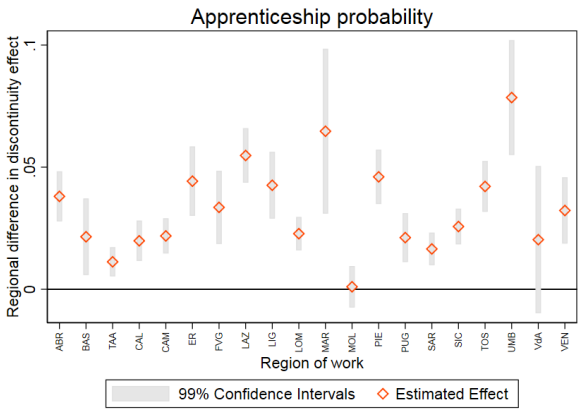
5.3 Discussion

All in all, these findings support the view that a labour contract which invests in human capital serves as a stepping stone into permanent employment. However, the impact is quite heterogeneous across regions. In the medium-run, the North-South divide clearly emerges with Southern regions experiencing much lower permanent employment gains over time. To better interpret these results I will allow for a differential impact across regions conditioning on the migration status. A migrant is defined as an individual who works in a region different from the one where s/he was born. This administrative dataset does not provide information when individuals migrate. According to the latest report by the Italian Statistical Office (2018) changes in residency is mainly within regions. In fact, between 2010 and 2014 only about 24% of those who changed residency migrate across regions. Largest flows are from the South to the Centre-North area of the country. By looking at the age profile of migrants, it seems that the main reason for migration is related to better working opportunities.

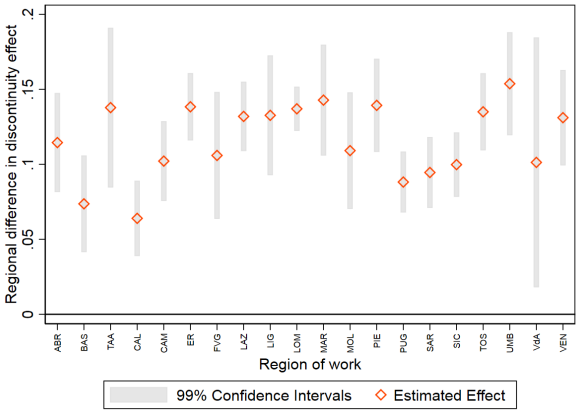
The current literature on the determinants of a labour contract which increases human capital has mainly emphasised the role of commitment (Dustmann and Schönberg 2012, Dustmann and Schönberg 2009) to the training and education provision in a framework of asymmetric information (Acemoglu and Pischke 1998, Acemoglu and Pischke 1999a, Acemoglu and Pischke 1999b). In such a setting the commitment to the human capital investment constitutes a necessary requirement. The successfulness of the apprenticeship labour contract to serve as a port of entry into permanent employment could also depend on whether and to what extent the individual's competencies and skills are related to the sorting of the individuals and to the screening of the firms in a given job.

[18] It is worth estimating the dynamic model also for the apprenticeship rate since the maximum length of the contract is 3 years. This length could be extended by collective agreements.

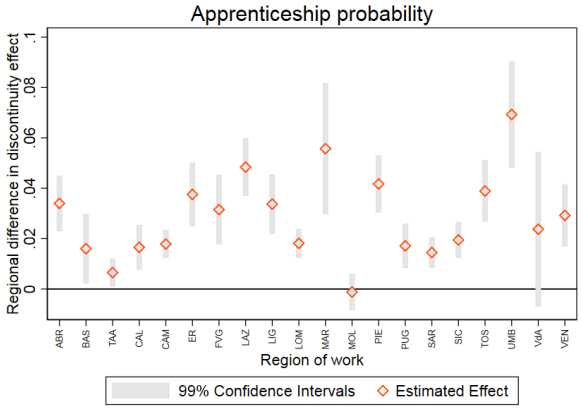
[19] These estimated effects are reported in Appendix A1.



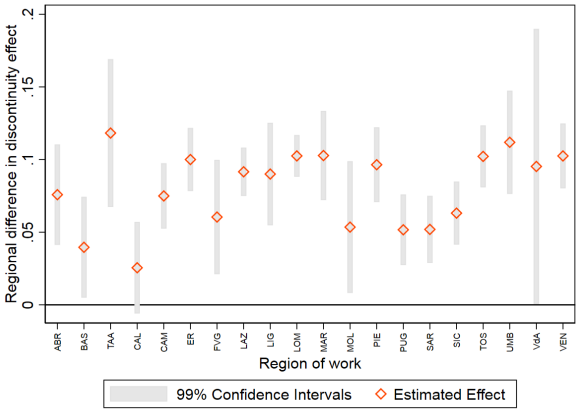
(a) After 12 months.



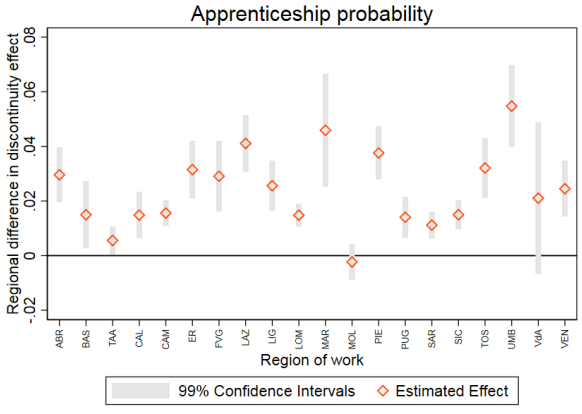
(b) After 12 months.



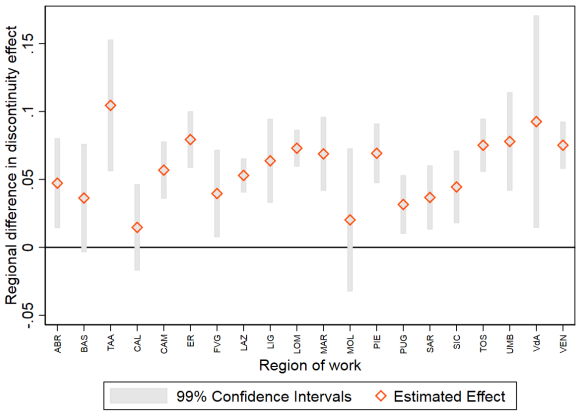
(c) After 24 months.



(d) After 24 months.



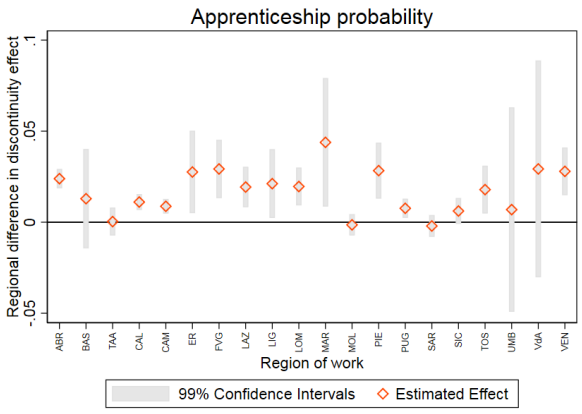
(e) After 30 months.



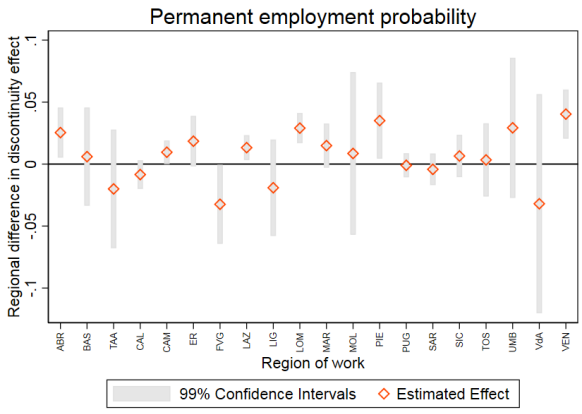
(f) After 30 months.

Figure 4: Difference in discontinuity: differential impact across regions of work over time

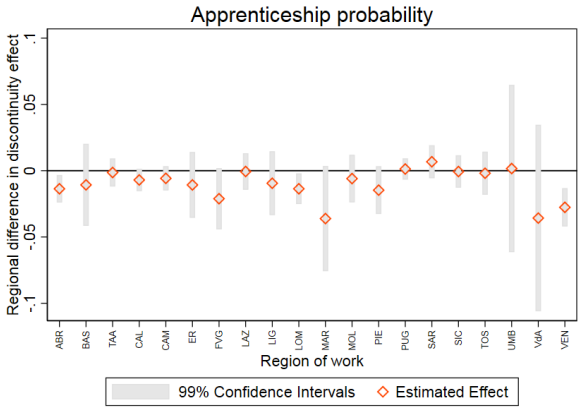
These sorting-screening processes could be driven by signals which are observable. If this is true, the educational and other observational signals of the migrants could be much weaker than that of the locals because firms are much better informed on the educational and environmental context of the region where they operate.



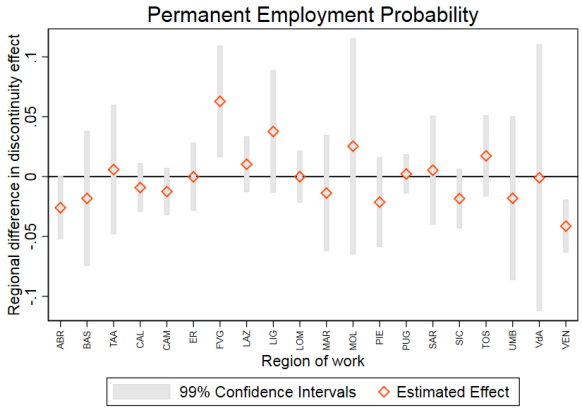
(a) On those born in the region of work.



(b) On those born in the region of work.



(c) On those born outside the region of work.



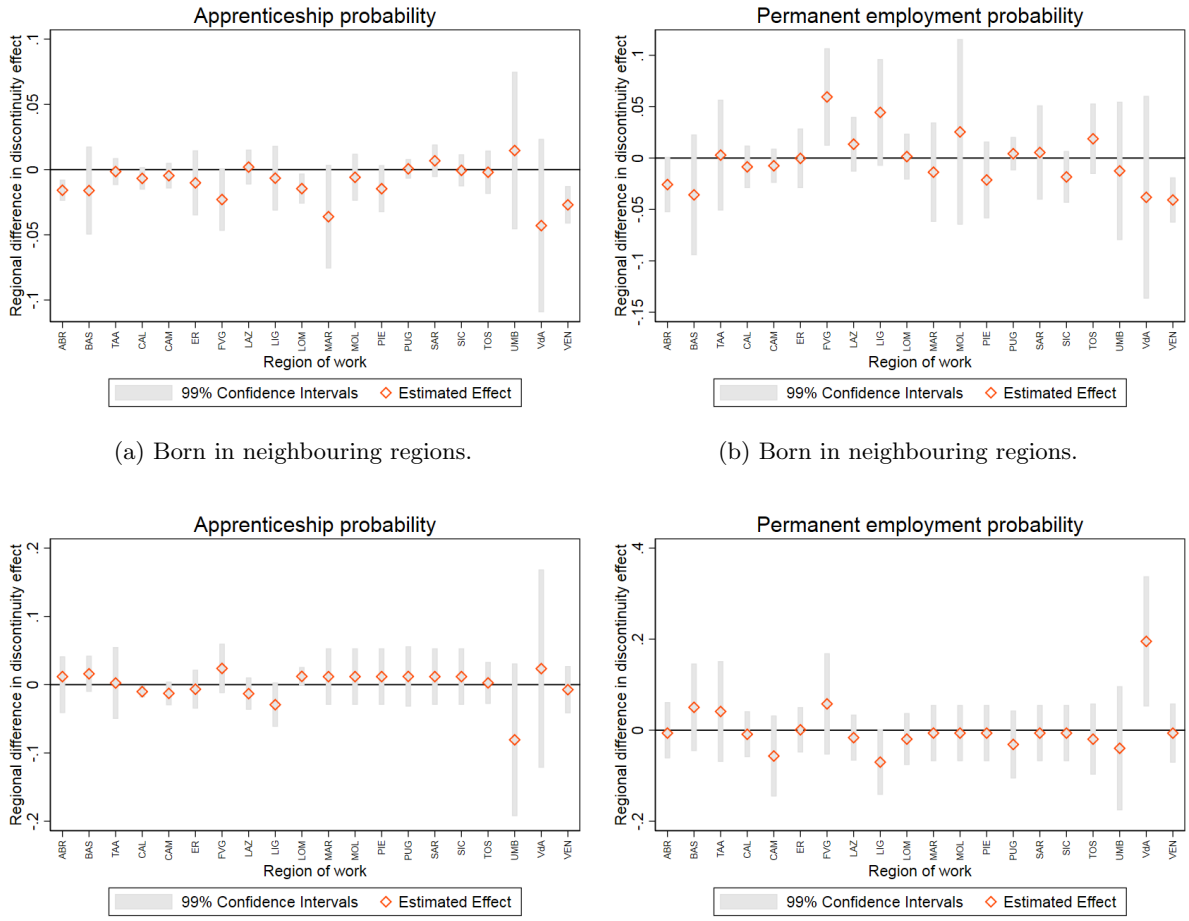
(d) On those born outside the region of work.

Figure 5: Difference in discontinuity: differential impact across natives and those born outside the region of work

Figure 5 displays the results. That is, it is verified whether the effect is different for those who were born (and likely grew up) in the region where they work compared to those who were born outside the region. Consistently with previous findings Basilicata, Trentino, Molise, Sardegna, Umbria and Valle d'Aosta are the only regions where the static ITT parameter is not statistically different from zero neither for those born in the region nor for all the others. In all the other regions at the age cutoff, the apprenticeship probability for regional natives, treated by the labour market reform, increased compared to the apprenticeship rate of untreated individuals. In contrast, the corresponding impact for those who were born outside the region is either statistically identical to zero or negative. These positive effects on the apprenticeship rate translate into a positive effect on the permanent employment probability of the natives in Campania, Emilia Romagna, Lazio, Lombardia, Marche, Piemonte and Veneto. Estimates for Friuli Venezia Giulia seem puzzling. On the one hand, the ITT impact on the apprenticeship rate of those born in the region is positive while it is negative for those born outside. On the other hand, at the age cutoff the permanent employment rate of those born in the (outside) region and treated by the labour market reform is lower (higher) than the permanent employment rate of untreated individuals. Estimates of the ITT impact on the permanent employment probability conditional on the firm (sector) for which the individual last worked are quite similar[20] revealing that the effect on the permanent employment

[20]These results are available from request from the author.

probability is mainly driven by conversions from temporary to permanent labour contracts. Articles 30-33 of the regional law no 18/2005 settled on several incentives to encourage firms to convert temporary into open-ended contracts. The age limit was fixed to 35 years. In principle, a difference in discontinuity impact in the conversion rate might not be observed and estimated. In practise, the data show that this is the case, possibly, as a result of the imperfect balancing out of the gender dummy.



(a) Born in neighbouring regions.

(b) Born in neighbouring regions.

(c) Born elsewhere.

(d) Born elsewhere.

Figure 6: Difference in discontinuity: differential impact across those born in neighbouring regions and those born elsewhere

In Figure 6, I disentangle further the impact at the baseline around the age cutoff for those treated individuals who were not born in the same region where they work, distinguishing between those who were born in a neighbouring region and non-neighbouring regions. There is no statistically different from zero impact neither for those coming from neighbouring regions nor for all the others coming from non-neighbouring regions.[21] A possible explanation is that the labour market reform encouraged the investment-oriented usage of the apprenticeship labour contract reinforcing the commitment to provide vocational training and to maintain the worker on a permanent basis. These conditions are more likely met if the sorting-screening processes of individuals and firms improves. The distance between the region of birth and the region of work does not help improving this process. In fact, this distance, while it surely reduces mobility costs, it unlikely provides an informational advantage on the workers-firms unobservable characteristics.

[21] In Veneto, for instance, this latter impact is statistically different from zero but small and negative.

All in all, this evidence points to the importance of the informational content of the apprenticeship labour contract. If this is the case, the same individual with the same observable and unobservable characteristics would increase more her productivity in a firm rather than in another. Consequently, disparities across regions emerge. This evidence contributes to provide an explanation on why the same type of contract is more successful to serve as a stepping stone into permanent employment in a region rather than in another. It helps clarifying why Trentino Alto Adige has the highest dynamic ITT impact on the permanent employment. Nevertheless, it does not explain completely why in this region there are not significant effects at the baseline.

6 Conclusions

Regional disparities in the functioning of the labour market are reported throughout years for Italy. To provide some insights of the permanent employment outcome to be expected, it is necessary to consider that the amount of individuals' human capital investment is strictly related to the region of work. The concentration of fewer opportunities to provide and to benefit of on-the-job training can end up in a vicious circle hard to break. As a consequence, policies that enhance social welfare might tackle the regional effects that hinder individuals' occupational perspectives. This objective requires, however, a knowledge of the existence of such regional disparities and of the mechanisms driving them. I exploit the conditional independent assumption between the location of work and the randomised variability introduced by a labour market reform at the age cutoff of 30 years, above which job entry as apprentice is not possible. This setting allows me to design a difference in discontinuity regression model that cannot suffer from endogeneity issues when dealing with heterogeneous effects across regions. At the baseline, there is not a clear North-South divide in the capacity of the vocational apprenticeship labour contract to serve as a stepping stone into permanent employment. However this divide emerges over time. Southern regions stand out as places with lower permanent employment rates, while northern regions seem to be better environments to create more stable occupations. Migration is not a solution for better endowed individuals. Asymmetric information matters a lot in the firm's decision to invest in the worker's human capital. The same observational signals of those born in the region where the firm operates are stronger. This let the sorting-screening processes of individuals and firms be more successful when asymmetric information are reduced. There could also be complementarities between either former education or the regional production system, and the on-the-job human capital accumulation process. Hence, the institutional setting of the regions could work as a barrier to increase the quantity and the quality of a human capital investment. This issue is left to future research.

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A1 Appendix: Difference in discontinuity impact on employment probability

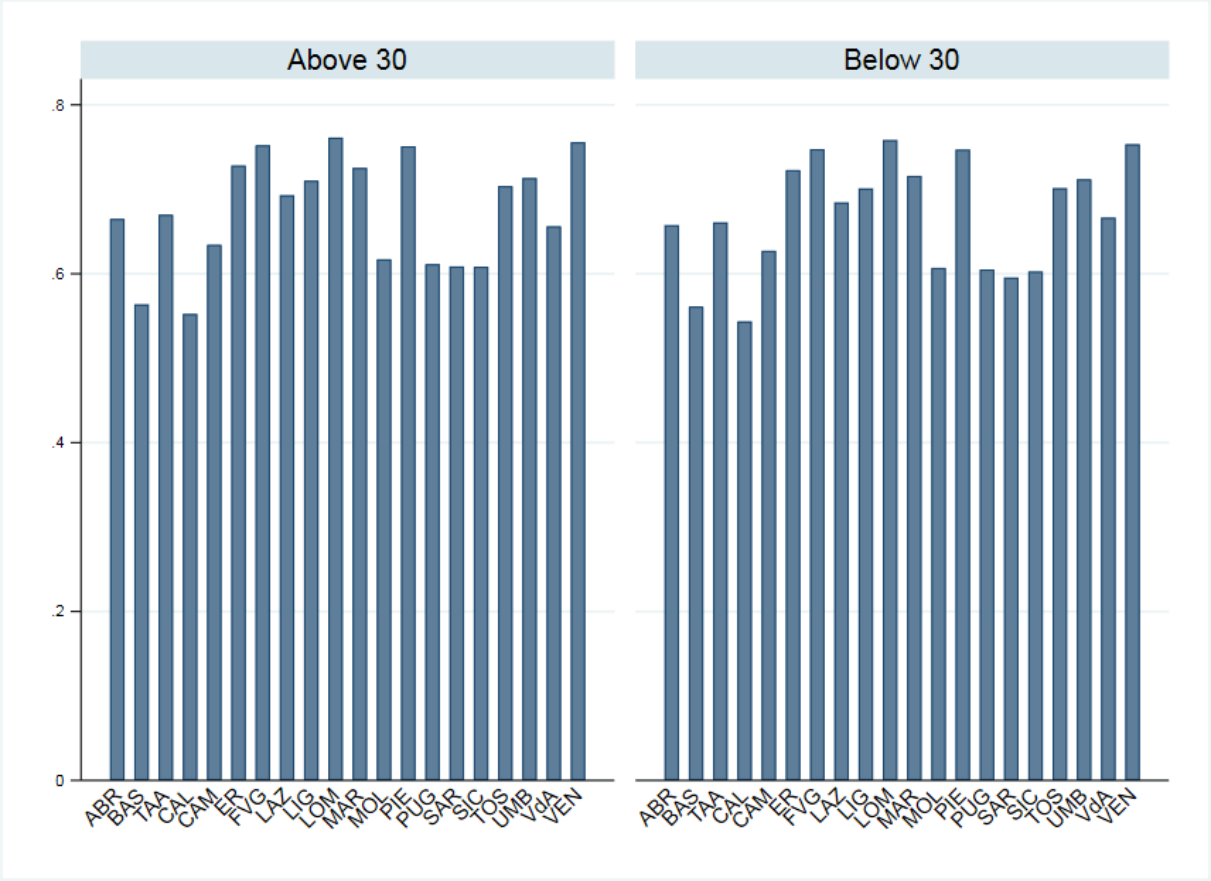
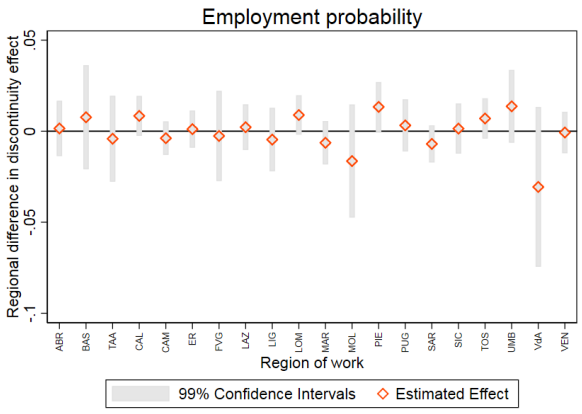
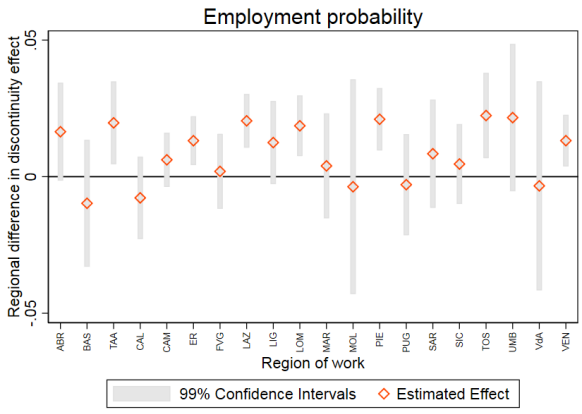


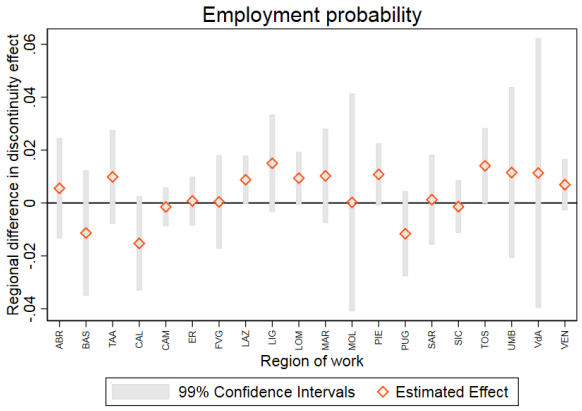
Figure 7: Incidence of employment probability across Italian Regions



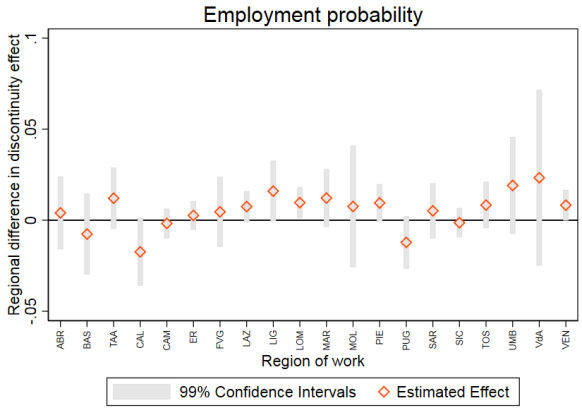
(a) Static effect at the baseline



(b) Dynamic effect: after 12 months

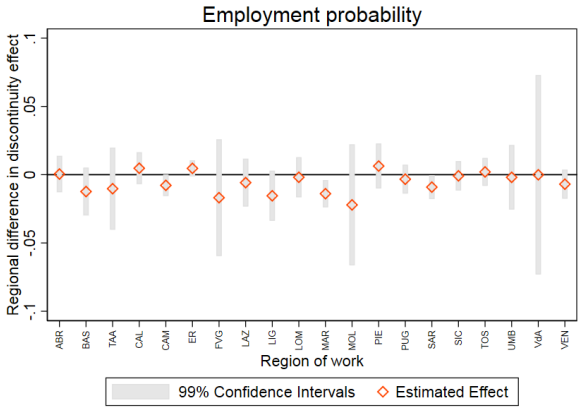


(c) Dynamic effect: after 24 months

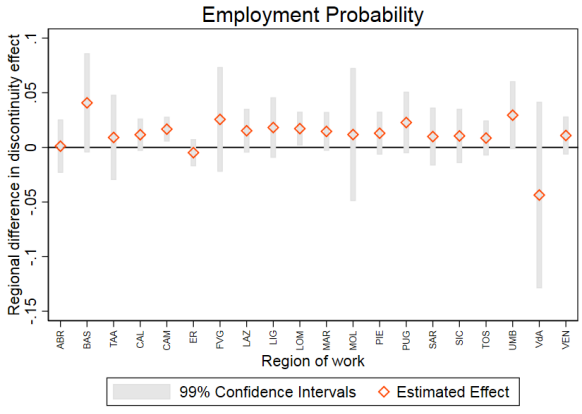


(d) Dynamic effect: after 30 months

Figure 8: Difference in discontinuity impact on employment probability

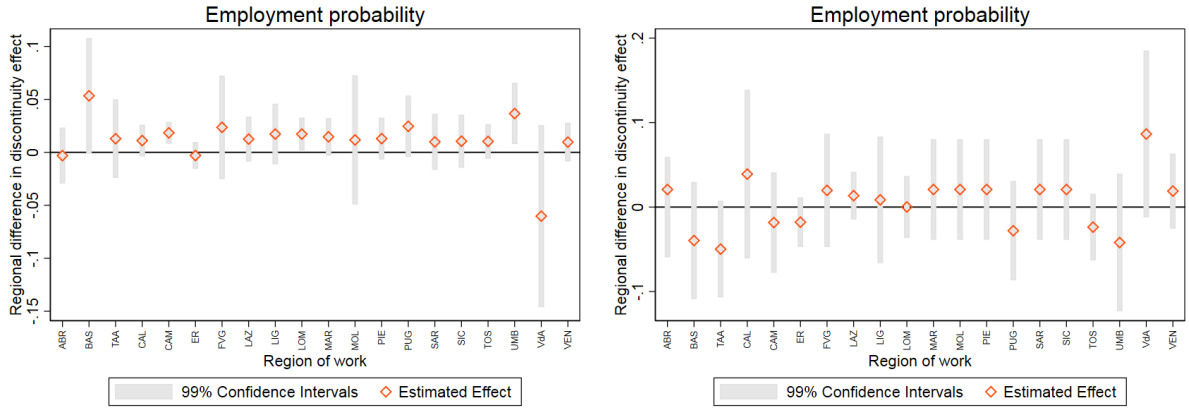


(a) On those born in the region of work.



(b) On those born outside the region of work.

Figure 9: Difference in discontinuity: differential impact on employment probability across natives and those born outside the region of work



(a) Born in neighbouring regions.

(b) Born elsewhere.

Figure 10: Difference in discontinuity: differential impact on the employment probability across those born in neighbouring regions and those born elsewhere

Regional disparities in the functioning of the labour markets (Appendix: Additional Materials)

ARTICLE HISTORY
Compiled December 5, 2019

Appendix A1. Empirical analysis region by region

A1.1. Abruzzo

Table A1. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	124.068	252.270	0	40.076	112.854
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		82.124	165.776		9.940	69.618
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	61.608		0.043	14.925
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	50.327		0	2.322
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A2. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	0.932	2.944	0	1.035	16.279
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.274	0.951		0.291	14.652
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	0.720		0.224	13.422
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.410		0	1.133
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A3. Permanent employment probability.

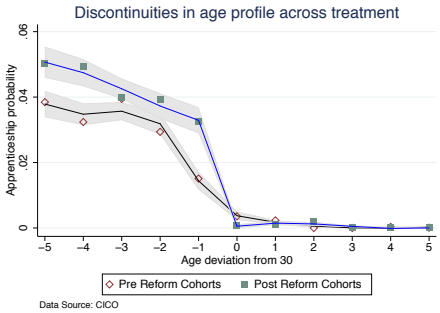
	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	0.756	54.854	0	11.634	65.081
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.356	30.684		11.893	45.231
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	0.957		2.594	22.050
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.137		0	7.733
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

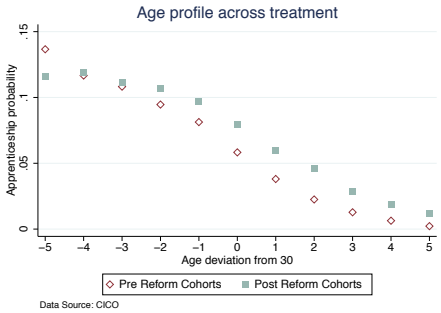
Table A4. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		**Polynomial fit**	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	0.018***	−0.008***	0.018	0.011
	0.004	0.003	0.021	0.023
Region of birth	−1.681***	−0.234	−1.681	−2.908
	0.400	0.282	3.354	3.169
Education	0.194	−0.786***	0.194	−0.367
	0.204	0.143	1.418	1.212
Missing education	−0.016***	0.005**	−0.016	0.006
	0.004	0.003	0.021	0.021
Past experience	−133.832***	−209.598***	−133.832	−119.361
	5.842	4.135	101.198	94.884
Missing past exp.	0.030***	0.011***	0.030	0.011
	0.004	0.003	0.054	0.054
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.009***	−0.001	−0.009	−0.000
	0.004	0.003	0.012	0.012
Regional mobility	−0.042***	−0.008**	−0.042	−0.046
	0.004	0.003	0.040	0.037
Higher 25 per. monthly job spells	−0.001	−0.013***	−0.001	−0.005
	0.004	0.003	0.078	0.073
Higher 25 per. monthly sep. flows	−0.005**	0.000	−0.005	−0.007
	0.002	0.002	0.012	0.011
Higher 25 per. monthly net job flows	−0.004	−0.003	−0.004	−0.004
	0.003	0.002	0.015	0.015
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.013***	0.005***	0.013	0.011
	0.002	0.001	0.014	0.013
Higher than 25 perc. soc. insurance benefits	−0.002***	0.001*	−0.002	−0.001
	0.001	0.000	0.002	0.002

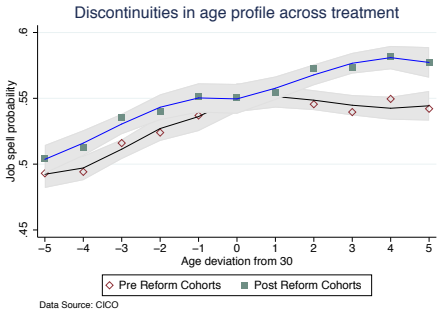
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is $\pm 1(2)$. Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

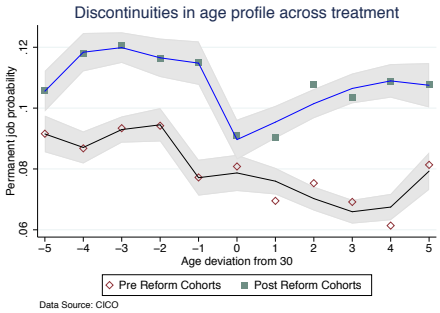


(b) Apprenticeship Probability.



(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A1. Difference in discontinuities.

Table A5. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.00877	-.00856	-.00874	-.01018	-.01006	.00152
	.03597	.01204	.01217	.01217	.01165	.00592
Apprenticeship prob.	.01677***	.0168***	.01678***	.01682***	.01669***	.01709***
	.00422	.00412	.0039	.00389	.00368	.00377
Perm. Employment prob.	.00928	.00942	.00915	.00877	.00849	.01234**
	.01142	.0078	.00677	.00677	.00683	.00623
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.2. Basilicata

Table A6. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	42.468	79.674	0	36.749	65.368
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		27.885	50.415		32.625	46.663
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	21.550		0.468	33.634
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	17.609		0	29.860
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A7. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	0.696	4.949	0	10.659	38.466
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.587	1.265		11.095	27.892
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	0.539		0.010	23.072
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.406		0	21.412
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A8. Permanent employment probability.

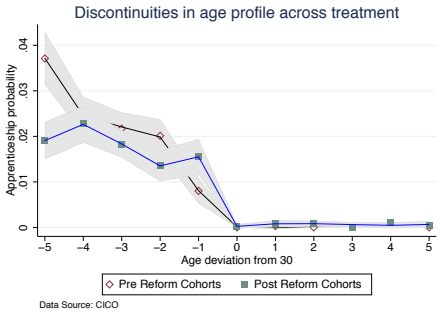
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	2.696	12.022	0	34.607	53.944
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		1.614	8.612		30.164	47.809
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	8.167		6.133	43.654
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	2.131		0	36.345
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

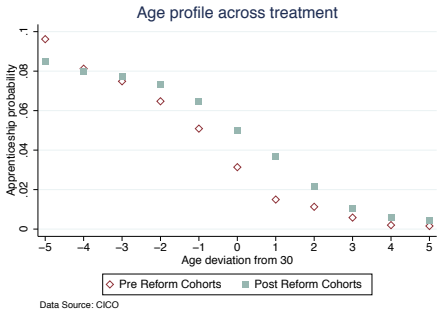
Table A9. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	0.041***	0.006	0.041	0.025
	0.006	0.004	0.029	0.031
Region of birth	2.689***	1.963***	2.689	1.045
	0.544	0.384	3.047	2.949
Education	0.202	−0.113	0.202	0.386
	0.274	0.194	1.146	0.943
Missing education	−0.016***	0.006	−0.016	−0.011
	0.006	0.004	0.026	0.021
Past experience	−138.036***	−221.749***	−138.036	−93.856
	7.633	5.339	116.198	102.814
Missing past exp.	0.046***	0.044***	0.046	0.042
	0.005	0.004	0.057	0.058
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.019***	−0.011***	−0.019	−0.012
	0.005	0.004	0.032	0.026
Regional mobility	−0.017***	0.001	−0.017	−0.022
	0.006	0.004	0.029	0.023
Higher 25 per. monthly job spells	0.002	0.017***	0.002	−0.007
	0.006	0.004	0.057	0.055
Higher 25 per. monthly sep. flows	−0.001	−0.005*	−0.001	−0.001
	0.004	0.003	0.015	0.015
Higher 25 per. monthly net job flows	0.004	−0.006**	0.004	0.005
	0.004	0.003	0.021	0.018
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.015***	0.007***	0.015	0.009
	0.003	0.002	0.016	0.015
Higher than 25 perc. soc. insurance benefits	0.004***	0.002***	0.004**	0.004**
	0.000	0.000	0.002	0.002

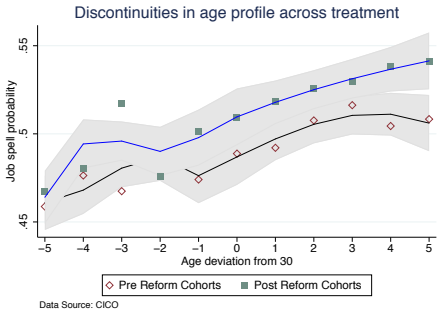
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is $\pm 1(2)$. Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

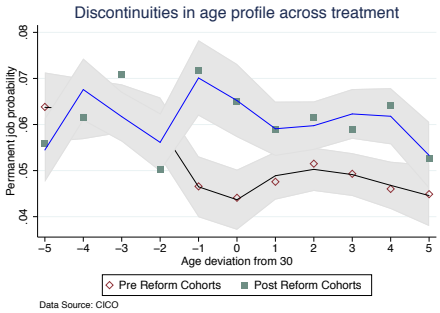


(b) Apprenticeship Probability.

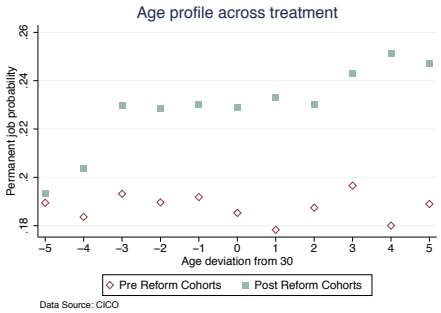


(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.



(f) Permanent Employment Probability.

Figure A2. Difference in discontinuities.

Table A10. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	.00789	.00486	.0026	.0037	.0113	.00766
	.03302	.02099	.02063	.02087	.01974	.01117
Apprenticeship prob.	.0077	.00769	.00749	.00746	.00754	.00778
	.0068	.00674	.00635	.00636	.00626	.00641
Perm. Employment prob.	.00135	.00066	-.00173	-.00144	-.00061	-.00231
	.01636	.01412	.01326	.0132	.01317	.0125
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.3. Trentino Alto Adige

Table A11. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	46.737	122.359	0	54.093	271.024
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		7.824	19.355		6.829	105.867
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	10.172		0.002	16.495
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	4.017		0	0.088
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A12. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	2.036	6.771	0	15.950	32.541
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		2.009	6.454		16.014	30.669
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	3.442		4.393	24.126
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	3.223		0	21.473
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A13. Permanent employment probability.

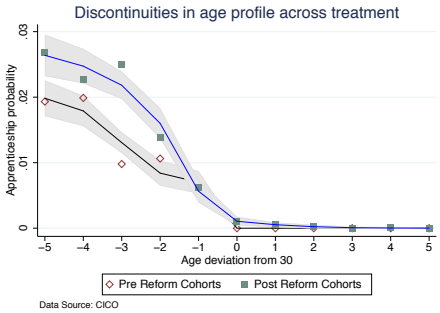
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	69.550	73.781	0	29.087	75.970
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		44.365	73.759		12.760	75.736
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	73.750		8.003	47.407
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	47.389		0	18.491
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

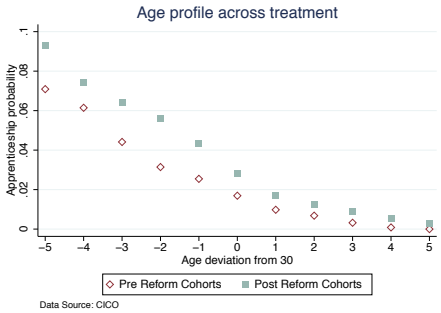
Table A14. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.027***	−0.025***	−0.027	−0.016
	0.004	0.003	0.022	0.024
Region of birth	1.619***	3.100***	1.619	1.021
	0.377	0.265	2.208	2.325
Education	−0.943***	−1.132***	−0.943	−0.802
	0.201	0.141	1.182	1.295
Missing education	0.012***	0.019***	0.012	0.003
	0.004	0.003	0.022	0.025
Past experience	−93.083***	−206.196***	−93.083	−64.729
	6.127	4.286	109.357	115.170
Missing past exp.	0.005	0.019***	0.005	−0.005
	0.004	0.002	0.020	0.022
Region of work	0.127**	0.467***	0.127	0.176
	0.063	0.044	0.319	0.335
Changing sector	0.006*	0.003	0.006	0.008
	0.003	0.002	0.011	0.010
Regional mobility	0.008**	0.015***	0.008	0.003
	0.004	0.003	0.021	0.021
Higher 25 per. monthly job spells	−0.012***	0.014***	−0.012	−0.007
	0.004	0.003	0.074	0.072
Higher 25 per. monthly sep. flows	−0.001	0.000	−0.001	0.001
	0.002	0.002	0.016	0.015
Higher 25 per. monthly net job flows	−0.002	−0.005**	−0.002	−0.003
	0.003	0.002	0.006	0.005
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	−0.000	0.000	−0.000	−0.001
	0.000	0.000	0.001	0.001
Higher than 25 perc. soc. insurance benefits	0.001	0.001**	0.001	0.001
	0.000	0.000	0.003	0.003

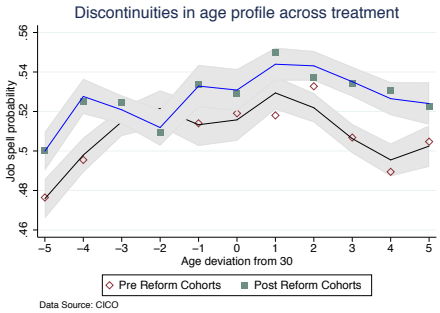
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



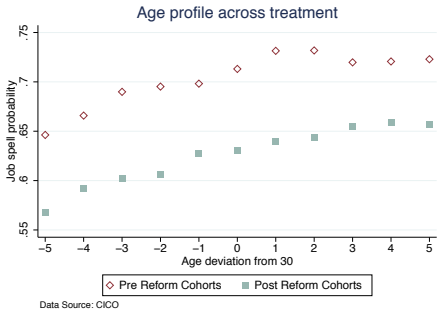
(a) Apprenticeship Probability.



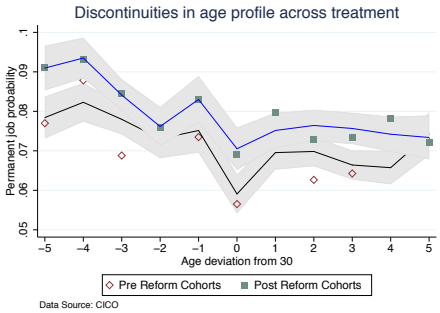
(b) Apprenticeship Probability.



(c) Employment Probability.



(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A3. Difference in discontinuities.

Table A15. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.00283	.00077	.00162	.00162	.0052	-.00415
	.03469	.02027	.02039	.01968	.01879	.00921
Apprenticeship prob.	-.00016	-.00018	-.00024	-.00024	-.00027	-.0005
	.00242	.00262	.00266	.00265	.00265	.0027
Perm. Employment prob.	-.01595	-.01561	-.01465	-.01465	-.01686*	-.01593*
	.01049	.01138	.01018	.01014	.00998	.00946
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.4. Calabria

Table A16. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	125.592	306.531	0	118.915	241.789
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		22.152	89.845		5.252	40.248
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	38.868		0.058	33.685
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	9.499		0	4.777
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A17. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	2.291	3.575	0	15.208	20.784
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.228	2.516		12.240	21.146
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	1.863		8.850	18.339
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.402		0	16.752
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A18. Permanent employment probability.

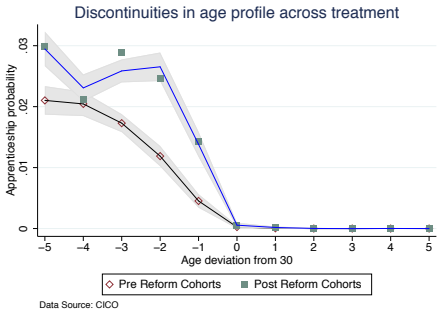
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	3.253	39.853	0	17.381	67.796
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.782	6.644		12.379	30.270
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	1.734		1.301	14.367
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	1.714		0	8.198
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

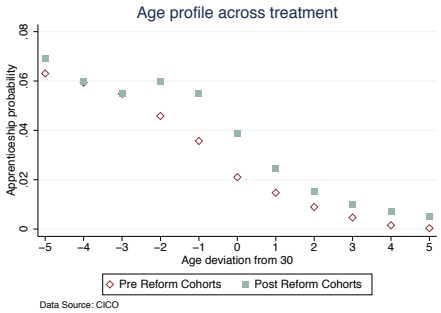
Table A19. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.010***	−0.010***	−0.010	−0.015
	0.003	0.002	0.015	0.015
Region of birth	−0.998***	−1.734***	−0.998	−0.955
	0.268	0.190	1.425	1.063
Education	−0.402***	−0.310***	−0.402	−0.539
	0.142	0.100	0.606	0.521
Missing education	0.011***	0.018***	0.011	0.006
	0.003	0.002	0.011	0.010
Past experience	−81.350***	−144.379***	−81.350	−68.274
	3.304	2.305	89.716	84.300
Missing past exp.	0.001	0.011***	0.001	−0.006
	0.003	0.002	0.048	0.041
Region of work	0	0	0	0
	0	0	0	0
Changing sector	0.012***	0.003*	0.012	0.005
	0.002	0.002	0.017	0.019
Regional mobility	−0.011***	−0.017***	−0.011	−0.012
	0.003	0.002	0.016	0.012
Higher 25 per. monthly job spells	−0.006*	−0.012***	−0.006	0.000
	0.003	0.002	0.084	0.080
Higher 25 per. monthly sep. flows	−0.004**	−0.003*	−0.004	−0.003
	0.002	0.001	0.017	0.017
Higher 25 per. monthly net job flows	−0.003	−0.003*	−0.003	−0.002
	0.002	0.002	0.008	0.008
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	−0.004***	−0.003***	−0.004	−0.011
	0.001	0.001	0.020	0.020
Higher than 25 perc. soc. insurance benefits	−0.001***	−0.000***	−0.001	−0.001
	0.000	0.000	0.000	0.001

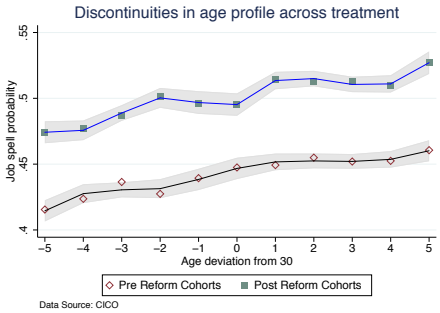
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



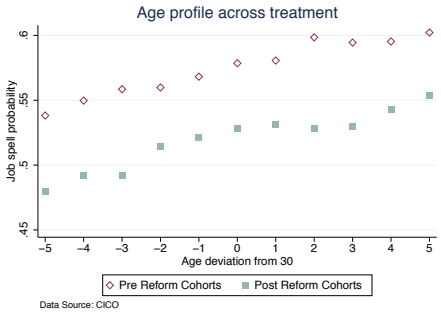
(a) Apprenticeship Probability.



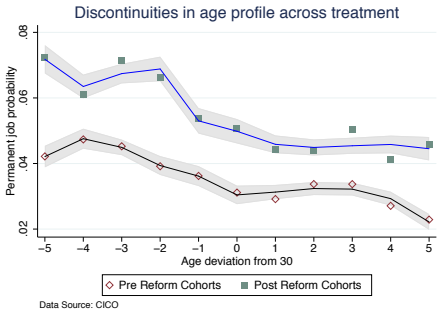
(b) Apprenticeship Probability.



(c) Employment Probability.



(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A4. Difference in discontinuities.

Table A20. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	.03558	.0325*	.03319*	.03297*	.03421**	.00839**
	.04723	.01699	.01722	.01735	.01623	.00426
Apprenticeship prob.	.00989***	.00988***	.00972***	.00973***	.00953***	.00904***
	.00246	.00229	.00218	.00217	.00217	.00207
Perm. Employment prob.	-.00795	-.00851	-.00801	-.00806	-.00878	-.01095**
	.00707	.0061	.00561	.00573	.00558	.0043
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.5. Campania

Table A21. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	315.794	645.748	0	235.961	350.340
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		109.725	368.321		12.395	139.117
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	148.543		0.675	114.207
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	55.826		0	15.818
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A22. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	6.550	15.341	0	12.862	36.755
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		2.574	4.652		7.650	26.144
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	4.446		7.670	24.783
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	2.563		0	6.272
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A23. Permanent employment probability.

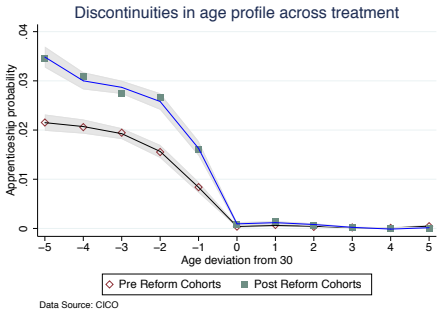
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	16.418	35.824	0	32.007	65.857
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.008	12.282		10.454	34.960
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		−0.001	10.150		10.051	24.008
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		−0.001	0.114		0.001	9.105
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

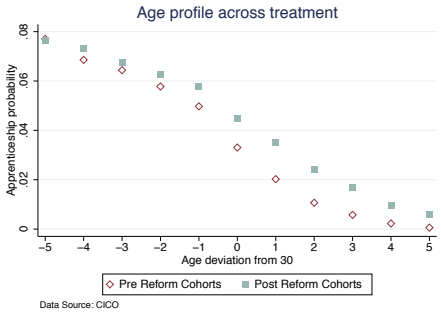
Table A24. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.001	0.006***	−0.001	−0.002
	0.002	0.002	0.012	0.012
Region of birth	−0.135	0.041	−0.135	−0.536
	0.174	0.123	0.667	0.711
Education	−1.195***	−1.423***	−1.195	−1.102
	0.098	0.070	0.864	0.935
Missing education	0.004**	0.009***	0.004	0.001
	0.002	0.001	0.009	0.009
Past experience	−86.581***	−182.968***	−86.581	−72.788
	2.853	1.986	88.277	87.371
Missing past exp.	−0.011***	0.012***	−0.011	−0.016
	0.002	0.002	0.038	0.034
Region of work	0	0	0	0
	0	0	0	0
Changing sector	0.015***	0.009***	0.015	0.013
	0.002	0.001	0.014	0.014
Regional mobility	−0.003	0.004***	−0.003	−0.009
	0.002	0.001	0.008	0.009
Higher 25 per. monthly job spells	−0.003	0.004**	−0.003	−0.001
	0.002	0.002	0.072	0.068
Higher 25 per. monthly sep. flows	0.005***	0.002**	0.005	0.005
	0.001	0.001	0.011	0.011
Higher 25 per. monthly net job flows	0.003*	0.001	0.003	0.004
	0.002	0.001	0.014	0.014
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.004***	0.008***	0.004	0.005
	0.001	0.001	0.016	0.015
Higher than 25 perc. soc. insurance benefits	0.001***	0	0.001	0.001
	0.000	0.000	0.001	0.001

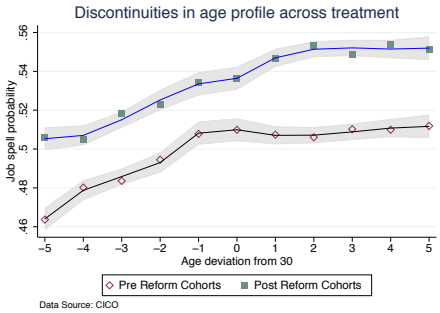
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

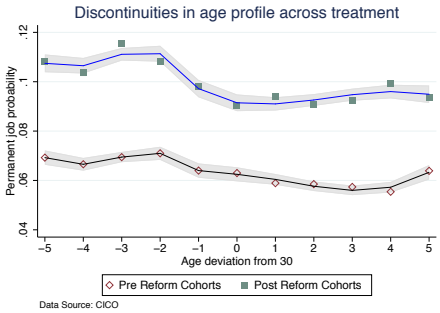


(b) Apprenticeship Probability.

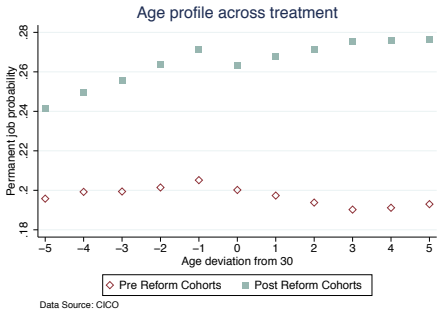


(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.



(f) Permanent Employment Probability.

Figure A5. Difference in discontinuities.

Table A25. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	.00522	.00164	.00206	.00236	.00103	-.00385
	.04277	.00863	.00818	.00813	.00814	.00358
Apprenticeship prob.	.00773***	.00773***	.00738***	.00737***	.00754***	.00749***
	.00181	.00199	.00193	.00194	.00188	.00194
Perm. Employment prob.	.00863	.00778**	.00555*	.00563*	.00597**	.00674**
	.00712	.00306	.00302	.00302	.003	.00337
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.6. Emilia Romagna

Table A26. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	642.993	1452.951	0	334.957	841.046
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		301.572	638.216		4.326	93.410
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	245.816		0.251	80.231
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	170.636		0	2.987
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A27. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	0.093	5.388	0	31.395	56.592
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		−0.010	4.070		30.710	55.688
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	0.101		0.546	43.811
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.112		0	28.526
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A28. Permanent employment probability.

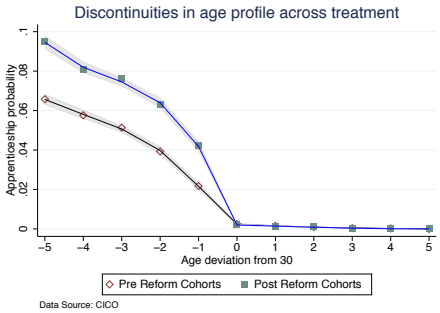
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	35.868	154.841	0	39.497	111.039
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		3.430	70.617		2.544	41.716
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	13.074		0.224	15.910
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.262		0	3.638
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

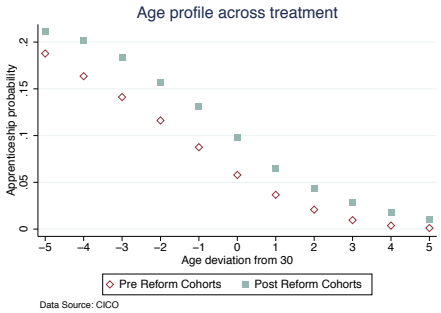
Table A29. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.000	−0.006***	−0.000	−0.007
	0.002	0.002	0.015	0.015
Region of birth	−0.746***	−1.225***	−0.746	−1.645
	0.214	0.151	1.194	1.027
Education	0.025	−0.310***	0.025	−0.239
	0.111	0.078	0.597	0.568
Missing education	0.006***	0.014***	0.006	0.008
	0.002	0.002	0.010	0.009
Past experience	−136.006***	−209.704***	−136.006	−117.840
	3.436	2.380	94.721	94.576
Missing past exp.	0.001	0.007***	0.001	0.006
	0.002	0.001	0.032	0.034
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.006***	−0.001	−0.006	−0.013*
	0.002	0.001	0.007	0.007
Regional mobility	−0.012***	−0.025***	−0.012*	−0.017***
	0.002	0.002	0.006	0.006
Higher 25 per. monthly job spells	−0.005*	−0.020***	−0.005	−0.002
	0.002	0.002	0.049	0.048
Higher 25 per. monthly sep. flows	−0.003**	−0.004***	−0.003	−0.003
	0.001	0.001	0.011	0.011
Higher 25 per. monthly net job flows	−0.003**	−0.008***	−0.003	−0.004
	0.002	0.001	0.019	0.018
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0	0.001***	0	0.000
	0.000	0.000	0.001	0.001
Higher than 25 perc. soc. insurance benefits	−0.001***	−0.001***	−0.001	−0.001
	0.000	0.000	0.001	0.001

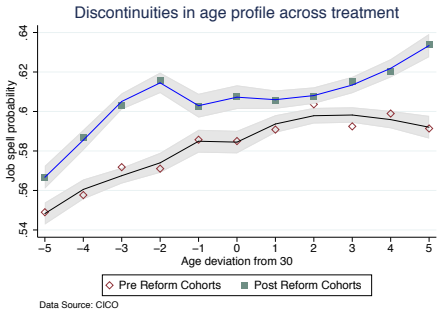
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

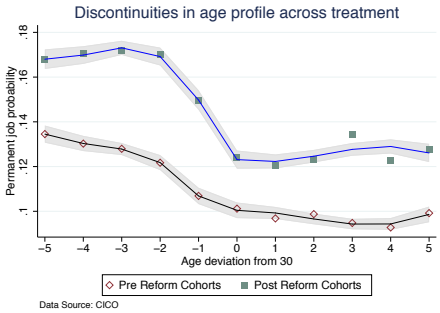


(b) Apprenticeship Probability.



(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A6. Difference in discontinuities.

Table A30. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.00602	-.00555	-.00599	-.00665	-.00277	.00114
	.02407	.00916	.00909	.00898	.00935	.00398
Apprenticeship prob.	.02021***	.02024***	.02032***	.02034***	.02025***	.02017***
	.00502	.00475	.00479	.00479	.00475	.00468
Perm. Employment prob.	.01589*	.01612***	.01725***	.01707***	.01666***	.01825***
	.00823	.00618	.00618	.00618	.00621	.00588
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.7. Friuli Venezia Giulia

Table A31. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	90.090	197.795	0	32.154	115.301
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		54.124	74.363		0.190	5.228
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	37.437		0.013	3.919
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	34.578		0	0.503
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A32. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	3.530	7.993	0	5.745	13.690
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.803	7.583		3.516	11.417
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	3.339		0.288	9.334
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.324		0	6.518
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A33. Permanent employment probability.

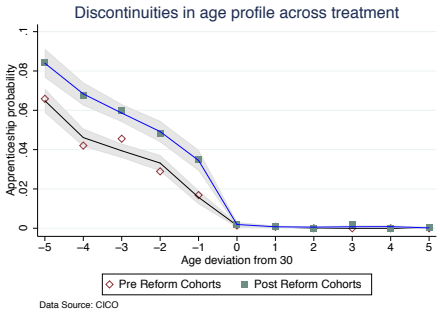
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	23.290	45.785	0	43.138	92.749
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		5.310	31.733		15.657	82.790
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	26.333		12.965	64.952
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	8.072		0	18.100
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

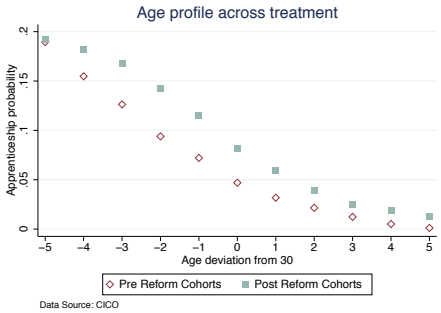
Table A34. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.028***	−0.012***	−0.028*	−0.027*
	0.006	0.004	0.014	0.015
Region of birth	−3.768***	−3.325***	−3.768	−4.867
	0.476	0.335	3.051	3.264
Education	2.479***	2.367***	2.479	2.896*
	0.267	0.188	1.529	1.584
Missing education	−0.030***	−0.038***	−0.030	−0.039
	0.004	0.003	0.024	0.025
Past experience	−116.467***	−268.193***	−116.467	−137.444
	8.196	5.814	106.386	109.115
Missing past exp.	−0.010**	0.024***	−0.010	−0.005
	0.005	0.003	0.042	0.048
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.025***	−0.023***	−0.025	−0.014
	0.005	0.003	0.018	0.020
Regional mobility	−0.025***	−0.023***	−0.025	−0.028
	0.005	0.004	0.032	0.033
Higher 25 per. monthly job spells	−0.008	0.011***	−0.008	−0.007
	0.005	0.004	0.065	0.059
Higher 25 per. monthly sep. flows	−0.000	−0.002	−0.000	0.003
	0.003	0.002	0.009	0.010
Higher 25 per. monthly net job flows	0.004	0.001	0.004	0.005
	0.004	0.003	0.017	0.014
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	−0.001**	−0.001	−0.001	0.002
	0.001	0.000	0.002	0.002
Higher than 25 perc. soc. insurance benefits	0.001	0.001**	0.001	0.000
	0.001	0.001	0.003	0.004

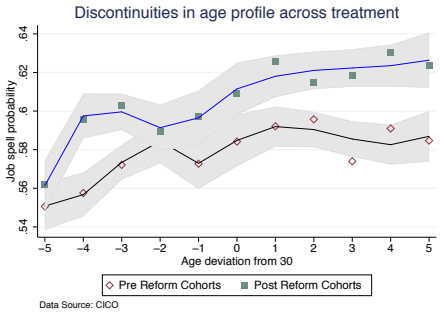
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

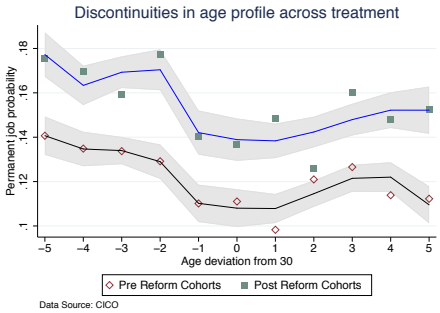


(b) Apprenticeship Probability.



(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A7. Difference in discontinuities.

Table A35. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	.00071	.0014	.00175	.00106	-.00002	-.00263
	.03422	.02001	.01979	.02005	.01797	.00966
Apprenticeship prob.	.01757***	.01762***	.0178***	.01782***	.01766***	.01737***
	.00627	.00597	.0057	.0057	.00567	.00564
Perm. Employment prob.	.00225	.00277	.00318	.00299	.00245	.00229
	.01693	.01614	.01666	.01676	.01675	.01484
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.8. Lazio

Table A36. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	1039.092	2512.437	0	411.380	707.464
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		646.624	2173.233		17.588	448.833
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	575.686		1.250	261.787
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	341.371		0	11.154
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A37. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	4.211	20.961	0	6.337	42.013
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		4.017	8.616		5.337	30.239
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	3.379		4.326	30.333
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	2.774		0	7.256
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A38. Permanent employment probability.

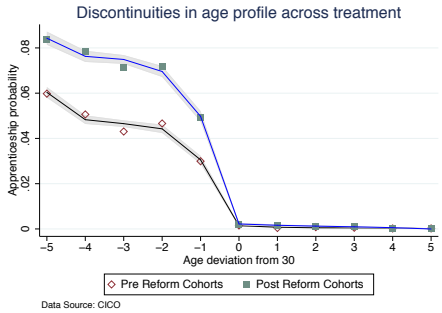
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	141.929	344.229	0	65.534	112.533
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		76.365	347.882		1.422	110.667
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0.002	112.079		0.489	75.254
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0.002	39.302		0	0.772
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

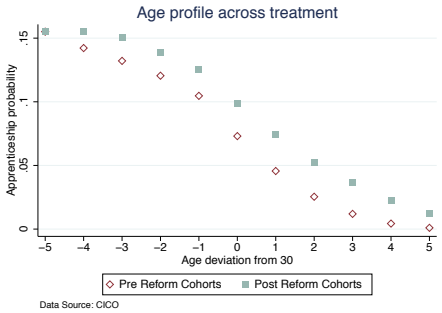
Table A39. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	0.004*	−0.012***	0.004	0.006
	0.002	0.002	0.008	0.007
Region of birth	−1.288***	0.213*	−1.288	−2.163*
	0.172	0.121	1.190	1.113
Education	0.121	−0.480***	0.121	0.280
	0.103	0.072	0.455	0.427
Missing education	−0.003*	−0.001	−0.003	−0.005
	0.002	0.001	0.010	0.010
Past experience	−107.898***	−189.427***	−107.898	−94.096
	2.710	1.870	94.828	89.808
Missing past exp.	0.010***	0.035***	0.010	0.007
	0.002	0.001	0.039	0.036
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.017***	−0.011***	−0.017	−0.003
	0.002	0.001	0.013	0.013
Regional mobility	−0.014***	−0.004***	−0.014	−0.018*
	0.002	0.002	0.010	0.010
Higher 25 per. monthly job spells	−0.003	−0.004**	−0.003	−0.004
	0.002	0.002	0.058	0.057
Higher 25 per. monthly sep. flows	−0.003**	−0.003***	−0.003	−0.002
	0.001	0.001	0.006	0.006
Higher 25 per. monthly net job flows	−0.002	−0.005***	−0.002	−0.002
	0.001	0.001	0.017	0.015
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	−0.001*	−0.001***	−0.001	0.001
	0.001	0.000	0.003	0.003
Higher than 25 perc. soc. insurance benefits	0.002***	0.001***	0.002	0.002*
	0.000	0.000	0.001	0.001

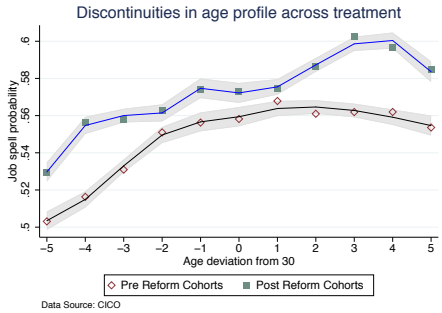
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is $\pm 1(2)$. Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

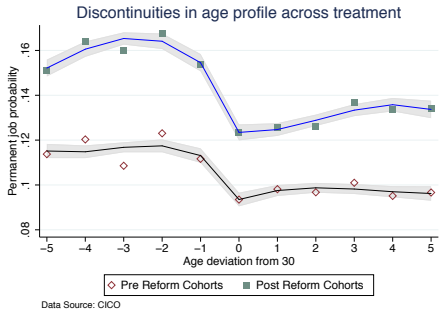


(b) Apprenticeship Probability.

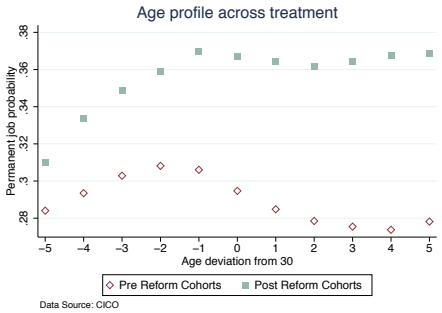


(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.



(f) Permanent Employment Probability.

Figure A8. Difference in discontinuities.

Table A40. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.00386	-.00483	-.00539	-.00546	-.00545	.00218
	.03208	.01033	.01005	.00997	.00961	.00488
Apprenticeship prob.	.01921***	.01922***	.01945***	.01945***	.01925***	.01918***
	.00416	.00424	.00412	.00412	.00408	.0041
Perm. Employment prob.	.01595*	.01552**	.01586**	.01584**	.01588**	.01871***
	.00881	.00691	.0065	.00648	.00644	.00573
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.9. Liguria

Table A41. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	213.917	468.950	0	116.629	232.592
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		100.620	291.894		1.615	70.279
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	98.887		0.516	54.766
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	54.055		0	0.826
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A42. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	9.895	19.605	0	13.485	28.332
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.001	19.612		3.242	28.327
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	14.255		2.124	24.469
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.160		0	2.120
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A43. Permanent employment probability.

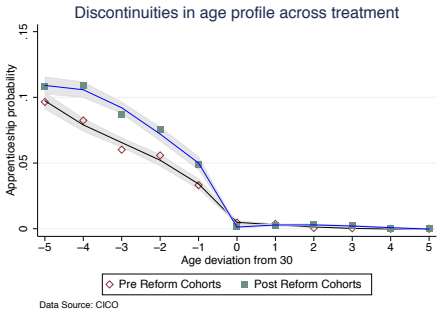
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	36.772	77.950	0	12.411	38.190
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		25.536	42.026		1.293	6.440
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	20.557		0.325	5.727
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	18.941		0	2.505
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

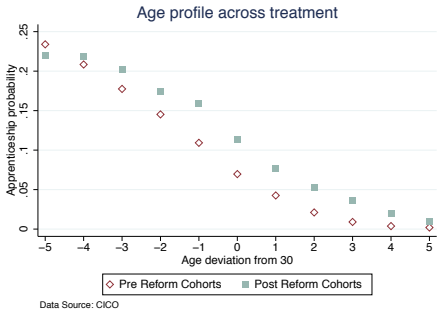
Table A44. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.028***	−0.001	−0.028*	−0.017
	0.005	0.003	0.015	0.018
Region of birth	0.657	−0.957***	0.657	0.332
	0.406	0.285	3.044	2.555
Education	0.564***	0.867***	0.564	0.258
	0.214	0.150	1.170	1.350
Missing education	−0.011***	−0.031***	−0.011	−0.011
	0.004	0.003	0.021	0.024
Past experience	−111.521***	−209.635***	−111.521	−87.946
	6.181	4.269	107.455	102.052
Missing past exp.	−0.025***	0.013***	−0.025	−0.029
	0.004	0.003	0.052	0.043
Region of work	0	0	0	0
	0	0	0	0
Changing sector	0.009**	−0.014***	0.009	0.004
	0.004	0.003	0.017	0.016
Regional mobility	0.006	−0.010***	0.006	−0.006
	0.005	0.003	0.018	0.015
Higher 25 per. monthly job spells	−0.007	−0.002	−0.007	−0.005
	0.005	0.003	0.058	0.053
Higher 25 per. monthly sep. flows	−0.006***	−0.004**	−0.006	−0.006
	0.002	0.002	0.009	0.007
Higher 25 per. monthly net job flows	0.003	−0.001	0.003	0.004
	0.003	0.002	0.019	0.020
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	−0.005***	−0.004***	−0.005**	−0.006***
	0.001	0.000	0.002	0.002
Higher than 25 perc. soc. insurance benefits	0.005***	0	0.005	0.002
	0.000	0.000	0.003	0.004

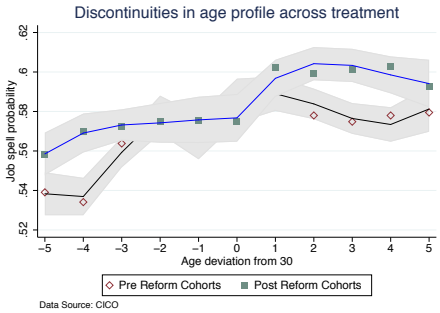
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is $\pm 1(2)$. Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



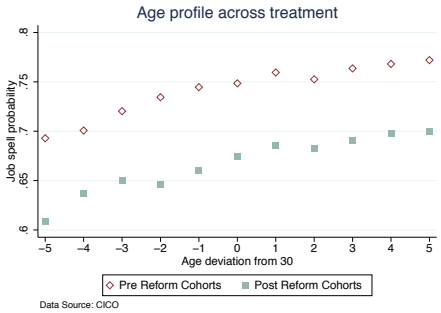
(a) Apprenticeship Probability.



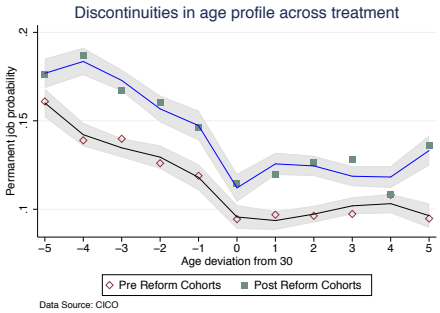
(b) Apprenticeship Probability.



(c) Employment Probability.



(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A9. Difference in discontinuities.

Table A45. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.01369	-.00852	-.00658	-.00744	-.01026	-.00462
	.02999	.01688	.01677	.01661	.01645	.0068
Apprenticeship prob.	.01576**	.0157**	.01572**	.01574**	.01587**	.0159**
	.00723	.00723	.00733	.00733	.0072	.00728
Perm. Employment prob.	.00142	.00202	.00229	.00206	.00237	.00343
	.01564	.01351	.0131	.01309	.01289	.01316
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.10. Lombardia

Table A46. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	766.575	1800.603	0	594.522	1691.562
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		261.812	474.462		31.109	177.655
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	230.834		2.757	104.763
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	150.035		0	11.333
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A47. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	15.637	18.326	0	10.138	21.901
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		15.712	16.994		10.113	18.472
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	15.362		6.926	15.037
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	15.169		0	13.264
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A48. Permanent employment probability.

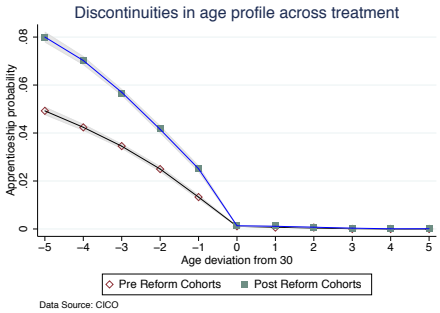
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	−0.005	125.670	205.069	0	50.970	111.869
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		83.427	120.135		17.280	48.900
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		−0.004	80.044		12.073	32.530
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		−0.004	68.701		0	15.710
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

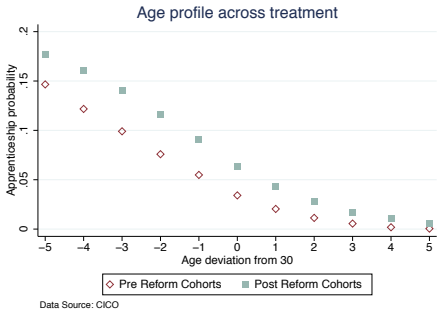
Table A49. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.005***	−0.012***	−0.005	−0.008
	0.002	0.001	0.016	0.017
Region of birth	1.235***	0.725***	1.235	0.764
	0.152	0.106	1.112	1.142
Education	−0.359***	−0.173***	−0.359	−0.441
	0.090	0.063	0.614	0.596
Missing education	−0.000	0.001	−0.000	−0.001
	0.002	0.001	0.010	0.009
Past experience	−154.522***	−237.699***	−154.522	−128.363
	2.790	1.932	110.320	107.673
Missing past exp.	0.015***	0.022***	0.015	0.005
	0.002	0.001	0.033	0.033
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.007***	−0.010***	−0.007	−0.003
	0.002	0.001	0.008	0.009
Regional mobility	0.005***	−0.011***	0.005	−0.003
	0.002	0.001	0.012	0.011
Higher 25 per. monthly job spells	−0.009***	−0.006***	−0.009	−0.003
	0.002	0.001	0.063	0.060
Higher 25 per. monthly sep. flows	−0.003***	−0.003***	−0.003	−0.002
	0.001	0.001	0.004	0.004
Higher 25 per. monthly net job flows	−0.007***	−0.006***	−0.007	−0.006
	0.001	0.001	0.016	0.016
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.000	−0.001***	0.000	−0.000
	0.000	0.000	0.001	0.001
Higher than 25 perc. soc. insurance benefits	0.001***	0.000***	0.001	0.001
	0.000	0.000	0.001	0.001

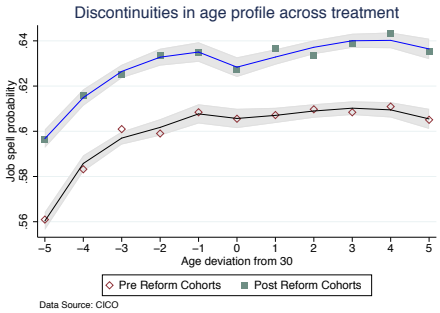
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

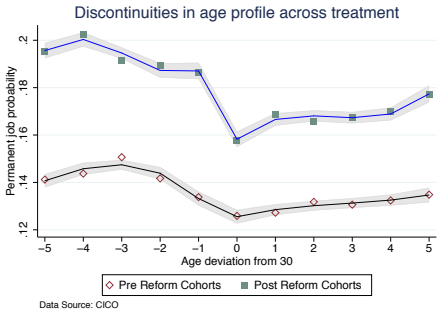


(b) Apprenticeship Probability.

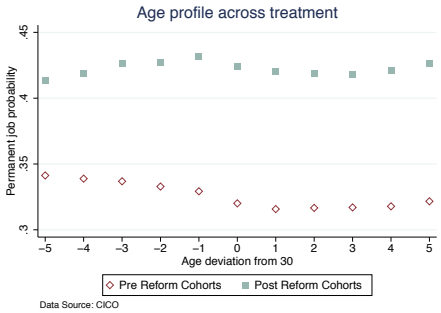


(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.



(f) Permanent Employment Probability.

Figure A10. Difference in discontinuities.

Table A50. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	.00467	.00465	.00603	.00614	.00799	.00889**
	.02851	.00596	.00603	.00614	.00646	.00421
Apprenticeship prob.	.01178***	.01183***	.0117***	.0117***	.01149***	.01111***
	.0039	.00376	.00382	.00382	.00383	.00374
Perm. Employment prob.	.02701***	.02702***	.02734***	.02737***	.02673***	.02898***
	.00886	.00557	.00559	.0056	.00561	.0055
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.11. Marche

Table A51. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	294.888	597.789	0	89.880	154.023
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		182.639	462.085		0.261	85.330
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	164.400		0.158	54.774
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	108.902		0	0.411
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A52. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	2.667	11.701	0	8.310	24.714
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		1.923	8.118		8.253	19.412
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	5.298		4.613	9.866
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	2.994		0	7.393
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A53. Permanent employment probability.

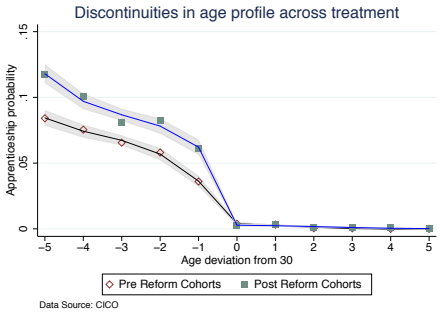
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	1.651	57.476	0	23.188	88.116
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		1.534	36.468		23.031	73.657
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	1.357		9.517	57.884
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.051		0	35.138
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

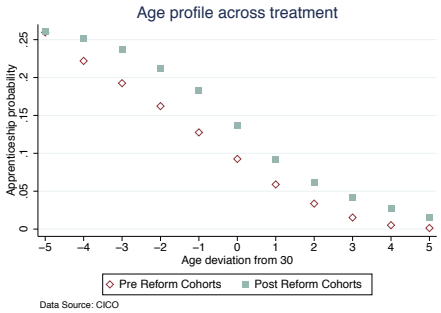
Table A54. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.008*	−0.001	−0.008	−0.001
	0.004	0.003	0.025	0.021
Region of birth	2.444***	0.918***	2.444	2.927**
	0.376	0.265	2.031	1.328
Education	−1.773***	−0.593***	−1.773	−1.907
	0.217	0.152	1.224	1.405
Missing education	−0.014***	−0.022***	−0.014	−0.015
	0.004	0.003	0.017	0.020
Past experience	−121.344***	−226.785***	−121.344	−103.927
	6.777	4.754	116.204	104.532
Missing past exp.	−0.020***	0.032***	−0.020	−0.004
	0.004	0.003	0.047	0.044
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.038***	−0.021***	−0.038**	−0.039***
	0.004	0.003	0.015	0.011
Regional mobility	0.024***	0.012***	0.024	0.033
	0.004	0.003	0.026	0.019
Higher 25 per. monthly job spells	0.022***	0.005*	0.022	0.017
	0.004	0.003	0.054	0.049
Higher 25 per. monthly sep. flows	0.006**	−0.005***	0.006	0.004
	0.002	0.002	0.010	0.010
Higher 25 per. monthly net job flows	0.006**	−0.007***	0.006	0.003
	0.003	0.002	0.016	0.017
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.000	0.000	0.000	0.003
	0.001	0.001	0.004	0.003
Higher than 25 perc. soc. insurance benefits	−0.001***	−0.001***	−0.001	−0.002
	0.001	0.000	0.004	0.003

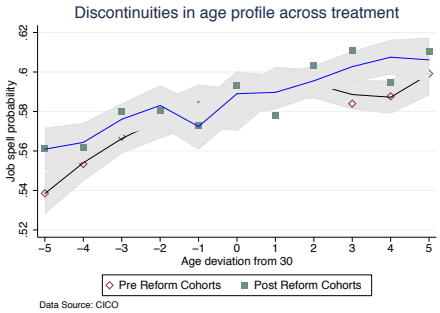
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

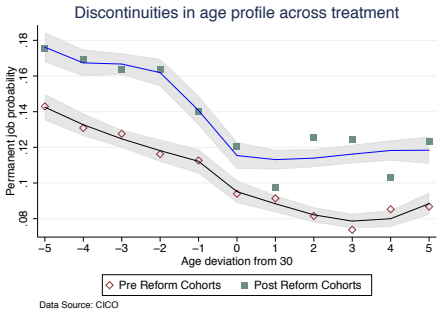


(b) Apprenticeship Probability.

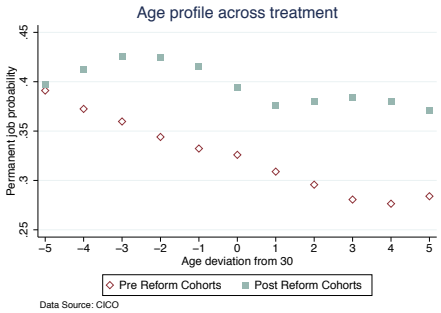


(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.



(f) Permanent Employment Probability.

Figure A11. Difference in discontinuities.

Table A55. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.03192	-.03293**	-.03237**	-.03185**	-.03322**	-.00636
	.02991	.01382	.0138	.01391	.01435	.00464
Apprenticeship prob.	.02493**	.02501**	.02522**	.02521**	.02493**	.0259**
	.01124	.01108	.01105	.01105	.01096	.01099
Perm. Employment prob.	.00145	.00199	.00324	.00338	.0029	.00841
	.01291	.01108	.01227	.01222	.01222	.01242
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

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Table A56. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	11.333	59.292	0	23.056	84.122
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.010	6.506		6.268	9.472
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	0.402		0.154	3.769
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.284		0	3.651
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A57. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	14.066	34.346	0	1.130	36.165
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		13.152	25.427		0.373	27.195
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	20.531		0.207	5.494
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	17.269		0	0.523
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A58. Permanent employment probability.

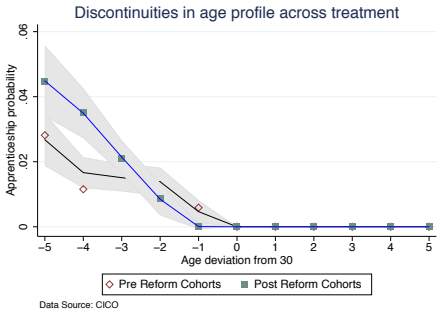
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	10.223	15.969	0	7.896	13.703
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		4.232	16.068		2.670	13.704
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	10.097		1.963	9.894
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	2.765		0	2.036
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

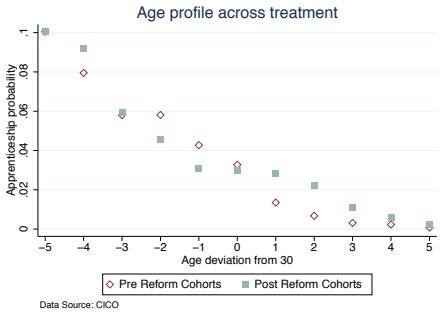
Table A59. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.065***	0.012*	−0.065	0.016
	0.010	0.007	0.061	0.066
Region of birth	−6.225***	−3.209***	−6.225*	−5.233
	0.727	0.519	3.026	3.231
Education	2.853***	0.386	2.853	0.870
	0.451	0.321	2.022	1.694
Missing education	−0.073***	−0.025***	−0.073*	−0.061**
	0.007	0.005	0.038	0.027
Past experience	−101.553***	−216.169***	−101.553	−121.723
	11.780	8.642	101.166	88.056
Missing past exp.	0.002	−0.035***	0.002	−0.006
	0.008	0.006	0.077	0.059
Region of work	0	0	0	0
	0	0	0	0
Changing sector	0.065***	0.036***	0.065	0.068*
	0.008	0.006	0.038	0.035
Regional mobility	−0.062***	−0.049***	−0.062	−0.073*
	0.010	0.007	0.043	0.042
Higher 25 per. monthly job spells	0.038***	0.050***	0.038	0.043
	0.010	0.007	0.081	0.084
Higher 25 per. monthly sep. flows	−0.011**	0.002	−0.011	−0.003
	0.005	0.004	0.012	0.011
Higher 25 per. monthly net job flows	−0.008	−0.002	−0.008	−0.001
	0.006	0.004	0.014	0.012
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	−0.001	−0.011***	−0.001	−0.009
	0.005	0.003	0.019	0.018
Higher than 25 perc. soc. insurance benefits	0.002**	−0.002***	0.002	0.000
	0.001	0.001	0.004	0.004

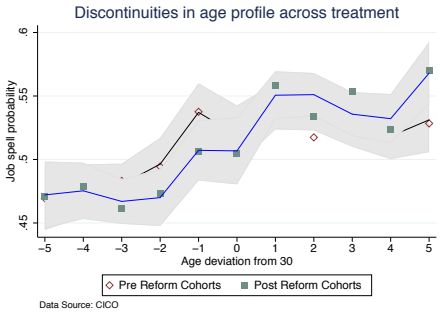
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is $\pm 1(2)$. Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



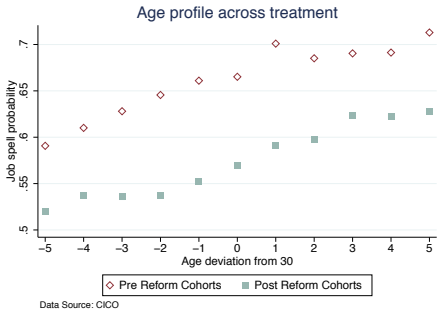
(a) Apprenticeship Probability.



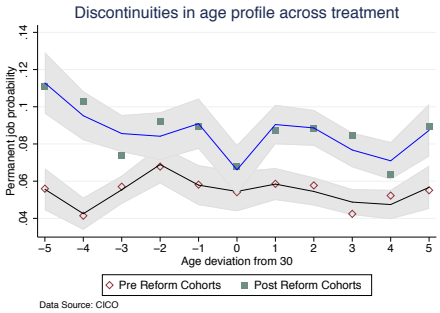
(b) Apprenticeship Probability.



(c) Employment Probability.



(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A12. Difference in discontinuities.

Table A60. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.0519	-.04707	-.04719	-.04631	-.05313*	-.01641
	.05443	.02973	.02977	.03043	.02954	.01212
Apprenticeship prob.	-.00565	-.00557	-.00512	-.00514	-.00573	-.00441
	.00411	.00419	.00436	.00434	.00432	.00432
Perm. Employment prob.	.00543	.00626	.01296	.0132	.01241	.02003
	.01819	.01827	.01704	.01715	.01784	.01803
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

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Table A61. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	455.289	1055.175	0	251.113	445.371
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		206.922	703.106		5.884	179.070
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	212.943		3.492	118.946
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	103.663		0	7.251
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A62. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	5.358	19.554	0	6.030	26.311
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		4.546	10.545		3.882	9.192
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	2.953		1.824	8.701
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	2.960		0	4.993
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A63. Permanent employment probability.

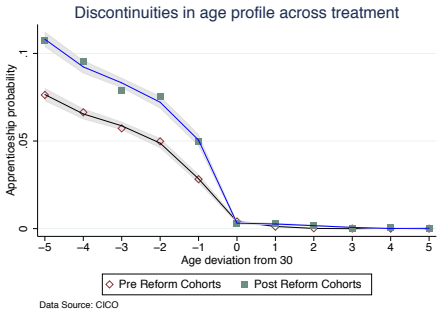
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	119.052	168.649	0	48.324	71.515
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		68.618	124.185		2.942	47.266
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	82.173		2.848	35.670
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	54.284		0	3.438
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

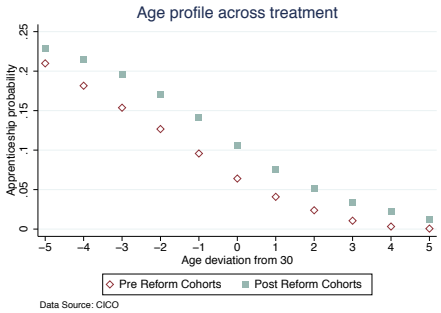
Table A64. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.019***	−0.016***	−0.019	−0.008
	0.003	0.002	0.016	0.015
Region of birth	−0.191	0.556***	−0.191	−1.181
	0.248	0.174	0.545	0.684
Education	0.253*	0.431***	0.253	0.442
	0.143	0.101	0.671	0.836
Missing education	−0.005*	−0.002	−0.005	−0.003
	0.002	0.002	0.012	0.012
Past experience	−143.608***	−242.960***	−143.608	−119.411
	4.685	3.283	119.234	116.914
Missing past exp.	0.041***	0.041***	0.041	0.037
	0.003	0.002	0.048	0.035
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.017***	−0.006***	−0.017	−0.010
	0.003	0.002	0.015	0.012
Regional mobility	0.001	0.013***	0.001	−0.009
	0.003	0.002	0.018	0.017
Higher 25 per. monthly job spells	−0.003	0.000	−0.003	−0.001
	0.003	0.002	0.055	0.053
Higher 25 per. monthly sep. flows	−0.005***	−0.005***	−0.005	−0.004
	0.001	0.001	0.008	0.008
Higher 25 per. monthly net job flows	−0.008***	−0.008***	−0.008	−0.006
	0.002	0.001	0.014	0.014
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.003***	0.001***	0.003***	0.001
	0.000	0.000	0.001	0.001
Higher than 25 perc. soc. insurance benefits	−0.001***	−0.002***	−0.001	−0.002
	0.000	0.000	0.002	0.002

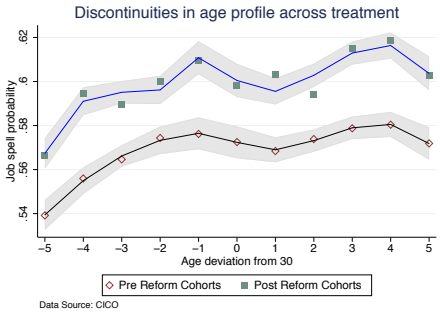
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

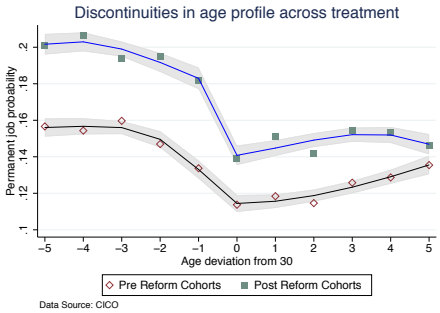


(b) Apprenticeship Probability.

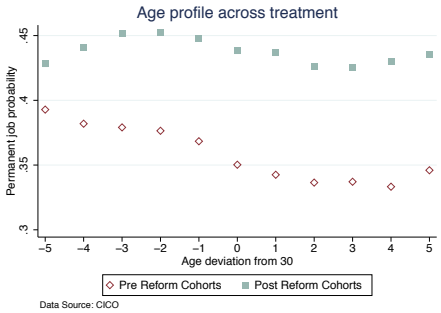


(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.



(f) Permanent Employment Probability.

Figure A13. Difference in discontinuities.

Table A65. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	.01128	.01039	.01031	.00964	.0157	.01335**
	.02671	.01177	.01166	.01154	.01132	.00532
Apprenticeship prob.	.02138***	.02142***	.02149***	.0215***	.02138***	.0208***
	.00544	.00528	.00519	.0052	.00513	.00497
Perm. Employment prob.	.02193	.02226	.02309*	.02292*	.02314*	.02433*
	.01585	.01371	.01307	.01302	.01309	.01255
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.14. Puglia

Table A66. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	211.571	433.528	0	85.199	287.571
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		122.893	177.875		27.702	42.751
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	90.341		0.413	42.173
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	78.715		0	31.098
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A67. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	5.178	25.992	0	9.744	31.222
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.958	7.796		5.057	14.015
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	3.350		4.869	7.040
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	2.006		0	5.108
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A68. Permanent employment probability.

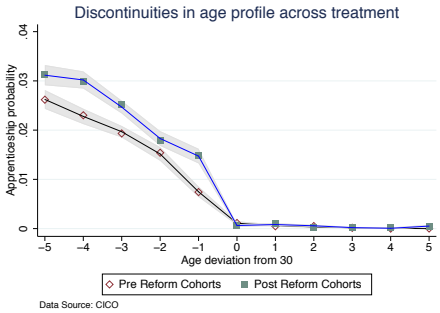
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0.001	39.825	66.661	0	35.881	64.795
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		17.122	64.716		6.087	56.895
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0.001	46.033		5.045	50.382
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0.001	12.834		−0.001	10.758
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

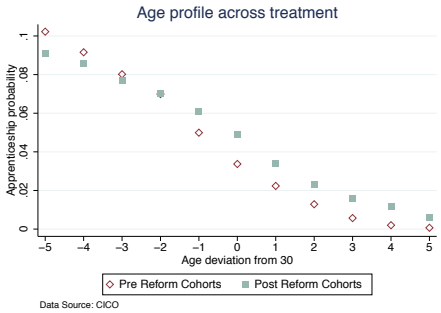
Table A69. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.023***	−0.013***	−0.023	−0.031*
	0.002	0.002	0.020	0.017
Region of birth	0.841***	0.068	0.841	−0.318
	0.173	0.123	0.948	1.145
Education	−1.570***	−0.780***	−1.570*	−1.314
	0.097	0.069	0.714	0.767
Missing education	0.015***	0.015***	0.015	0.012
	0.002	0.001	0.011	0.011
Past experience	−113.259***	−184.737***	−113.259	−83.919
	2.937	2.043	112.449	105.271
Missing past exp.	0.001	0.006***	0.001	−0.005
	0.002	0.001	0.062	0.057
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.006***	−0.002	−0.006	−0.004
	0.002	0.001	0.017	0.019
Regional mobility	0.011***	0.006***	0.011	−0.001
	0.002	0.002	0.013	0.016
Higher 25 per. monthly job spells	0.005*	0.010***	0.005	0.011
	0.002	0.002	0.058	0.056
Higher 25 per. monthly sep. flows	−0.001	0.002*	−0.001	0.000
	0.001	0.001	0.013	0.012
Higher 25 per. monthly net job flows	0.002	−0.003**	0.002	0.004
	0.002	0.001	0.015	0.014
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	−0.001	−0.002**	−0.001	−0.002
	0.001	0.001	0.013	0.012
Higher than 25 perc. soc. insurance benefits	0.001***	0.000	0.001	0.002*
	0.000	0.000	0.001	0.001

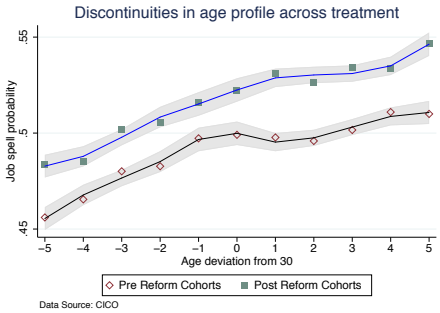
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

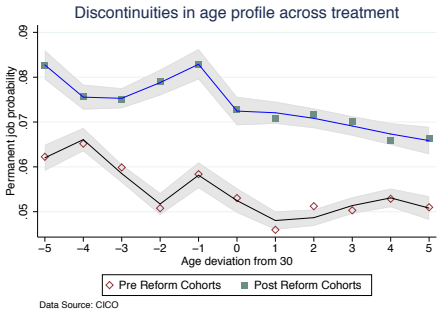


(b) Apprenticeship Probability.

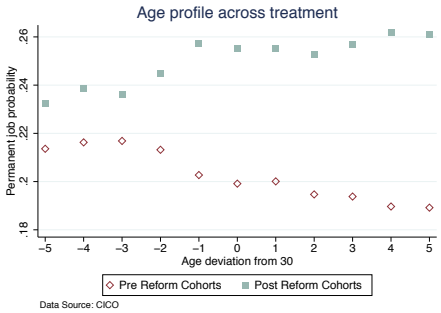


(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.



(f) Permanent Employment Probability.

Figure A14. Difference in discontinuities.

Table A70. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.00264	-.0034	-.00281	-.00303	-.00435	.00318
	.03713	.00932	.00938	.00966	.01037	.00558
Apprenticeship prob.	.00751***	.00746***	.00715***	.00715***	.00756***	.00809***
	.0025	.00241	.00223	.00223	.00217	.00214
Perm. Employment prob.	-.00075	-.00104	-.00232	-.00238	-.00197	-.00021
	.0087	.00533	.00397	.00402	.00412	.00364
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.15. Sardegna

Table A71. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	68.461	161.636	0	51.195	159.713
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		36.524	45.702		14.202	26.584
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	25.439		0.319	11.859
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	23.413		0	8.742
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A72. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	3.184	5.057	0	4.150	14.410
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.098	5.008		0.626	14.463
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	4.150		0.571	7.254
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.020		0	1.201
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A73. Permanent employment probability.

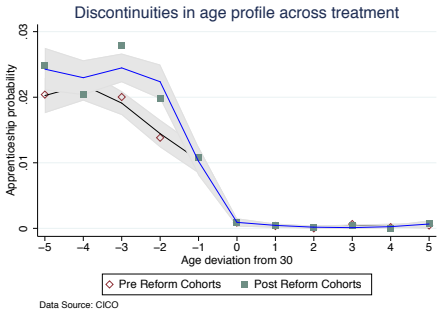
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	18.897	58.930	0	22.348	53.340
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.099	23.960		2.236	24.616
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	10.231		1.921	14.953
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.143		0	2.129
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

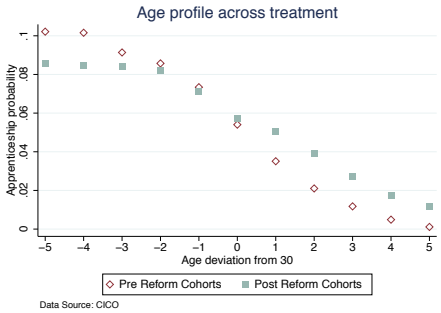
Table A74. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	0.032***	0.026***	0.032*	0.044***
	0.004	0.003	0.016	0.013
Region of birth	0.074	0.126	0.074	−0.817
	0.208	0.147	1.353	1.365
Education	0.539***	0.022	0.539	0.823
	0.169	0.119	1.118	1.193
Missing education	0.004	0.010***	0.004	0.001
	0.003	0.002	0.013	0.013
Past experience	−76.794***	−160.479***	−76.794	−29.323
	4.861	3.409	113.574	109.480
Missing past exp.	−0.018***	−0.012***	−0.018	−0.042
	0.003	0.002	0.067	0.068
Region of work	0	0	0	0
	0	0	0	0
Changing sector	0.018***	0.030***	0.018	0.024
	0.003	0.002	0.016	0.014
Regional mobility	−0.025***	−0.015***	−0.025*	−0.037**
	0.003	0.002	0.013	0.015
Higher 25 per. monthly job spells	−0.001	−0.005*	−0.001	−0.008
	0.004	0.003	0.065	0.063
Higher 25 per. monthly sep. flows	−0.004*	−0.002	−0.004	−0.004
	0.002	0.002	0.017	0.016
Higher 25 per. monthly net job flows	0.001	−0.000	0.001	0.000
	0.003	0.002	0.017	0.016
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	−0.007***	−0.009***	−0.007	−0.002
	0.002	0.001	0.014	0.014
Higher than 25 perc. soc. insurance benefits	−0.002***	−0.001***	−0.002	−0.002
	0.000	0.000	0.002	0.002

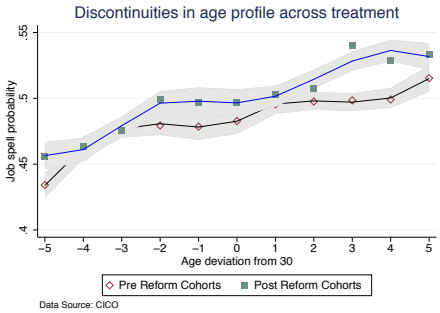
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



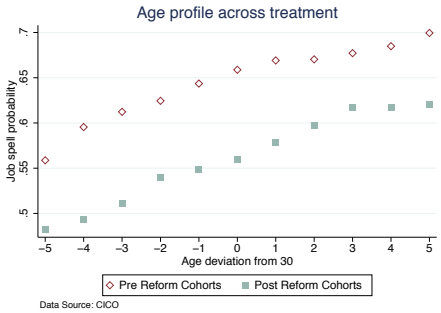
(a) Apprenticeship Probability.



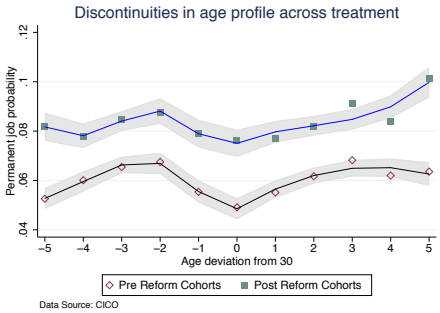
(b) Apprenticeship Probability.



(c) Employment Probability.



(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A15. Difference in discontinuities.

Table A75. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.0031	-.00165	-.00047	-.00031	-.00615	-.00697*
	.04194	.00866	.00824	.00834	.01041	.00397
Apprenticeship prob.	.00036	.00036	.00017	.00017	-.00036	-.00057
	.00216	.00254	.00255	.00255	.00256	.00259
Perm. Employment prob.	-.00157	-.00119	-.00061	-.00057	-.0022	-.00288
	.00908	.00644	.00662	.00658	.00668	.00569
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.16. Sicilia

Table A76. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	324.424	619.238	0	128.471	279.055
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		177.340	322.165		0.006	44.250
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	147.081		−0.007	39.246
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	108.608		−0.001	0.095
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A77. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	6.381	24.772	0	33.846	47.650
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.026	25.216		21.369	45.982
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	7.219		11.829	30.732
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.286		0	22.383
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A78. Permanent employment probability.

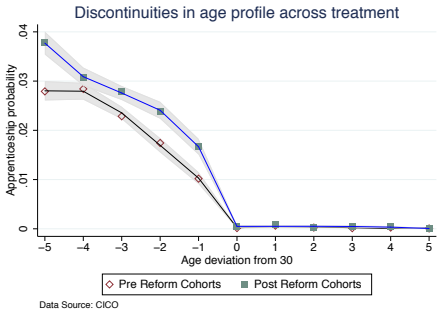
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	26.585	122.292	0	24.228	105.024
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		27.063	63.689		22.442	46.455
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	32.497		19.030	45.806
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	19.094		−0.001	23.784
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

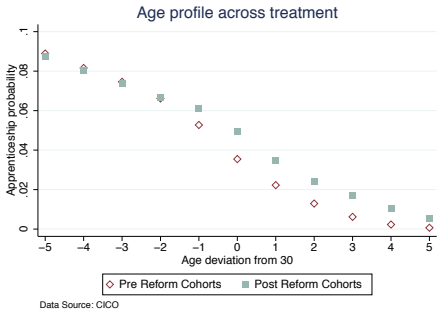
Table A79. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	0.004	0.011***	0.004	0.002
	0.002	0.002	0.015	0.014
Region of birth	0.003	−0.426***	0.003	−0.296
	0.157	0.111	1.248	0.962
Education	−0.155	−0.102	−0.155	−0.596
	0.097	0.068	0.771	0.791
Missing education	−0.005***	−0.004***	−0.005	−0.001
	0.002	0.001	0.011	0.011
Past experience	−129.579***	−198.968***	−129.579	−100.850
	2.900	2.039	104.744	96.112
Missing past exp.	0.015***	0.025***	0.015	0.008
	0.002	0.002	0.038	0.035
Region of work	0	0	0	0
	0	0	0	0
Changing sector	0.011***	0.002	0.011	0.011
	0.002	0.001	0.018	0.018
Regional mobility	0.005**	−0.000	0.005	−0.001
	0.002	0.001	0.016	0.015
Higher 25 per. monthly job spells	−0.000	0.003*	−0.000	−0.008
	0.002	0.002	0.063	0.062
Higher 25 per. monthly sep. flows	−0.001	0.001	−0.001	−0.001
	0.001	0.001	0.014	0.014
Higher 25 per. monthly net job flows	−0.000	0.001	−0.000	0.001
	0.002	0.001	0.013	0.012
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.005***	0.002**	0.005	0.008
	0.001	0.001	0.018	0.018
Higher than 25 perc. soc. insurance benefits	0.001***	−0.000	0.001	0.000
	0.000	0.000	0.001	0.001

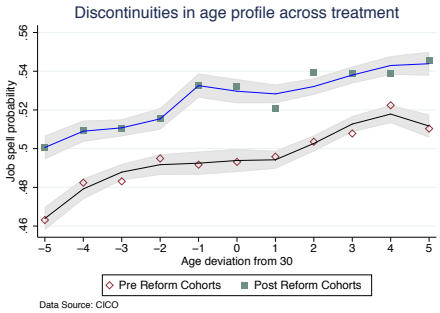
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



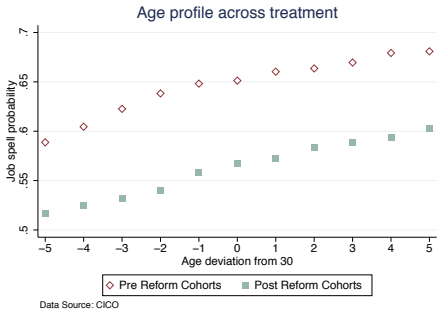
(a) Apprenticeship Probability.



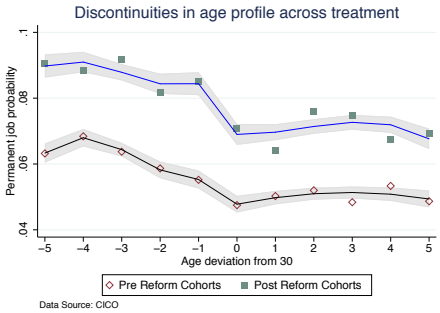
(b) Apprenticeship Probability.



(c) Employment Probability.



(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A16. Difference in discontinuities.

Table A80. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	.01961	.01748***	.0185***	.01801***	.01705**	.00143
	.03979	.00644	.00639	.00648	.0074	.00537
Apprenticeship prob.	.00666***	.00667**	.0064**	.00641**	.00624**	.00613**
	.00243	.00263	.00257	.00257	.00264	.00261
Perm. Employment prob.	.00485	.00447	.00536	.00523	.00433	.00262
	.00774	.00616	.00559	.00563	.00547	.00592
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.17. Toscana

Table A81. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	425.812	1058.264	0	267.449	653.391
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		176.113	399.817		10.428	91.667
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	145.688		0.119	70.363
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	96.496		0	15.947
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A82. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	22.559	29.879	0	8.756	13.171
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		15.876	29.284		5.052	13.032
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	18.437		1.455	11.853
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	12.462		0	5.568
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A83. Permanent employment probability.

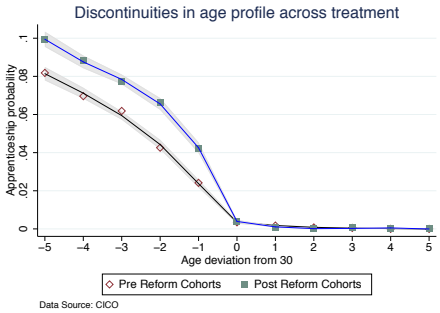
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	60.657	162.523	0	35.676	77.273
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		26.090	98.483		1.440	34.229
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	28.699		0.643	18.599
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	13.868		0	2.963
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

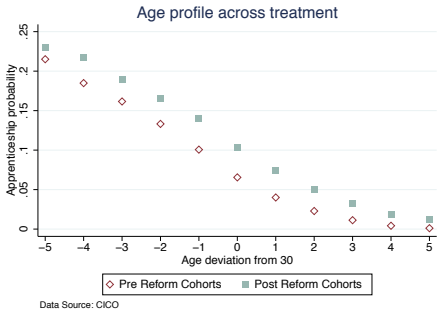
Table A84. Balancing out covariates at the threshold.

	Main Sample			
	Raw data:t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.005**	−0.009***	−0.005	−0.003
	0.003	0.002	0.020	0.023
Region of birth	−1.689***	−0.920***	−1.689	−2.509**
	0.223	0.158	1.376	1.192
Education	−0.296**	−0.059	−0.296	−0.303
	0.125	0.088	0.683	0.679
Missing education	−0.003	0.005***	−0.003	0.003
	0.002	0.002	0.012	0.013
Past experience	−126.220***	−226.702***	−126.220	−117.887
	3.913	2.743	102.074	101.511
Missing past exp.	0.018***	0.027***	0.018	0.018
	0.002	0.002	0.028	0.027
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.008***	−0.011***	−0.008	−0.004
	0.002	0.002	0.008	0.007
Regional mobility	−0.022***	−0.012***	−0.022*	−0.030**
	0.003	0.002	0.011	0.012
Higher 25 per. monthly job spells	−0.017***	−0.011***	−0.017	−0.015
	0.003	0.002	0.055	0.051
Higher 25 per. monthly sep. flows	−0.006***	−0.006***	−0.006	−0.007
	0.001	0.001	0.012	0.012
Higher 25 per. monthly net job flows	−0.000	−0.006***	−0.000	−0.002
	0.002	0.001	0.014	0.014
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.002***	0.002***	0.002	0.001
	0.000	0.000	0.002	0.002
Higher than 25 perc. soc. insurance benefits	0.001**	0.000	0.001	0.000
	0.000	0.000	0.002	0.002

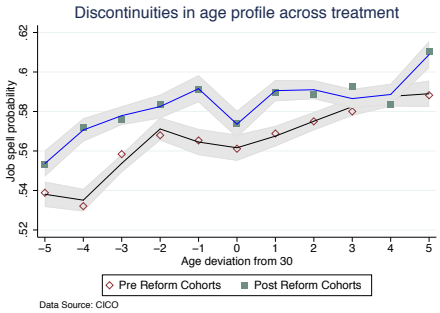
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



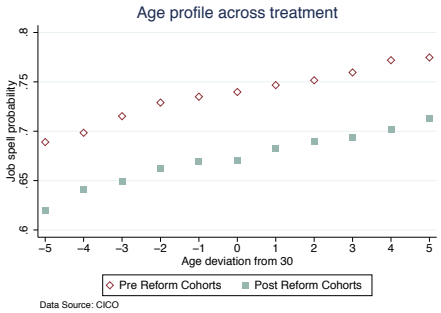
(a) Apprenticeship Probability.



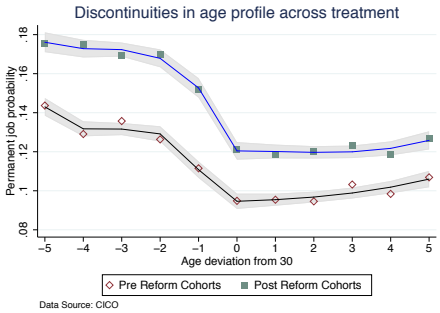
(b) Apprenticeship Probability.



(c) Employment Probability.



(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A17. Difference in discontinuities.

Table A85. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	.00396	.00698	.00707	.00708	.01311*	.00698
	.02611	.00739	.00716	.0073	.00789	.00432
Apprenticeship prob.	.01801***	.01793***	.01783***	.01783***	.01762***	.01707***
	.00545	.00529	.00535	.00536	.00524	.00512
Perm. Employment prob.	.01417	.01441	.01417	.01417	.01311	.01393
	.01173	.01021	.01028	.01025	.01031	.00994
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.18. Umbria

Table A86. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	227.367	430.196	0	74.467	122.824
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		166.139	320.540		14.810	59.745
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	121.152		0.245	46.734
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	103.643		0	24.152
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A87. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	8.451	11.585	0	14.691	41.037
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.282	9.754		3.622	39.649
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	9.057		0.879	36.708
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.134		0	9.069
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A88. Permanent employment probability.

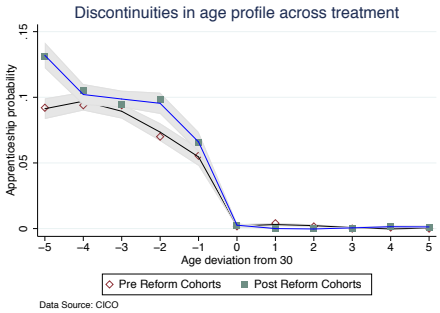
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	101.901	163.001	0	41.070	82.096
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		57.797	95.057		2.099	33.752
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	61.006		2.070	24.365
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	44.620		0	1.706
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

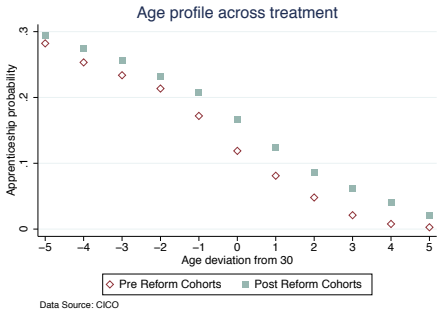
Table A89. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	0.008	−0.000	0.008	0.042
	0.006	0.004	0.032	0.033
Region of birth	−0.536	−0.906***	−0.536	−1.654
	0.471	0.335	2.407	2.427
Education	1.718***	1.086***	1.718	2.219
	0.289	0.206	1.538	1.831
Missing education	−0.069***	−0.067***	−0.069**	−0.077**
	0.005	0.004	0.027	0.029
Past experience	−117.600***	−195.876***	−117.600	−84.037
	8.580	6.060	114.083	116.975
Missing past exp.	0.005	−0.010***	0.005	−0.012
	0.005	0.004	0.042	0.040
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.009*	−0.003	−0.009	−0.031
	0.005	0.004	0.040	0.042
Regional mobility	−0.004	−0.003	−0.004	−0.011
	0.006	0.004	0.036	0.033
Higher 25 per. monthly job spells	−0.008	−0.029***	−0.008	−0.006
	0.006	0.004	0.061	0.054
Higher 25 per. monthly sep. flows	−0.009***	−0.008***	−0.009	−0.004
	0.003	0.002	0.009	0.009
Higher 25 per. monthly net job flows	−0.002	−0.007**	−0.002	−0.002
	0.004	0.003	0.020	0.018
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.010***	0.009***	0.010	0.004
	0.001	0.001	0.006	0.006
Higher than 25 perc. soc. insurance benefits	−0.001	0.001	−0.001	−0.001
	0.001	0.001	0.003	0.003

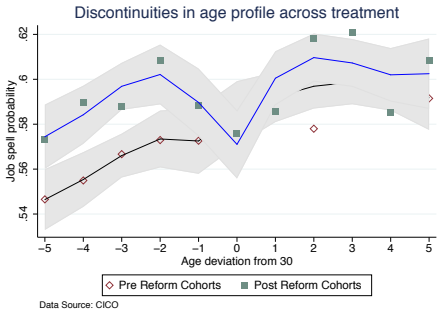
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



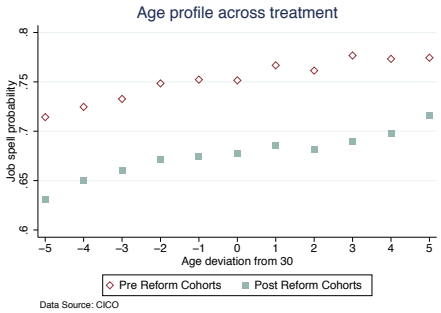
(a) Apprenticeship Probability.



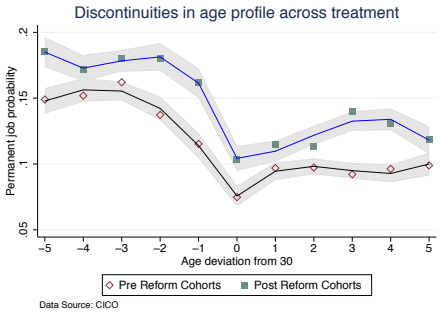
(b) Apprenticeship Probability.



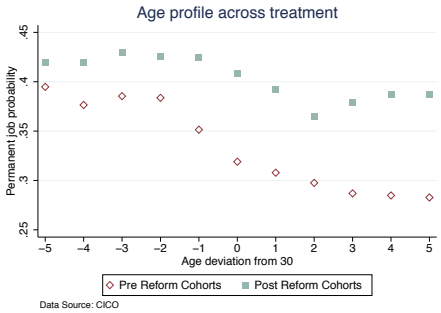
(c) Employment Probability.



(d) Employment Probability.



(e) Permanent Employment Probability.



(f) Permanent Employment Probability.

Figure A18. Difference in discontinuities.

Table A90. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.00939	-.01274	-.01547	-.01551	-.01548	.01366*
	.03141	.01967	.01951	.01966	.01874	.00779
Apprenticeship prob.	.00903	.00908	.0089	.0089	.00832	.00893
	.01372	.0136	.01349	.01347	.01346	.01324
Perm. Employment prob.	.01679	.01688	.01352	.01351	.01372	.01918
	.01782	.01532	.01502	.01514	.01529	.01342
Self employment	.00163	.00154	.00191	.00192	.0024	-.00051
	.0105	.0106	.01037	.01037	.00994	.00956
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.19. Valle d'Aosta

Table A91. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	28.658	65.313	0	35.723	104.578
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		1.827	14.750		2.969	34.809
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	7.965		0.078	10.992
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.532		0	0.178
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A92. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	2.590	6.313	0	1.931	26.591
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		2.068	6.448		1.380	25.629
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	5.140		0.260	20.667
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	2.974		0	3.333
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A93. Permanent employment probability.

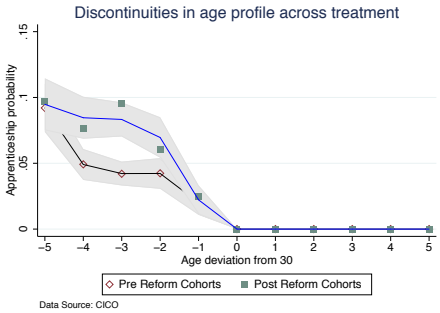
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	12.700	17.320	0	18.063	39.366
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.612	13.547		2.257	30.331
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	11.847		0.134	11.667
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	1.039		0	0.417
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

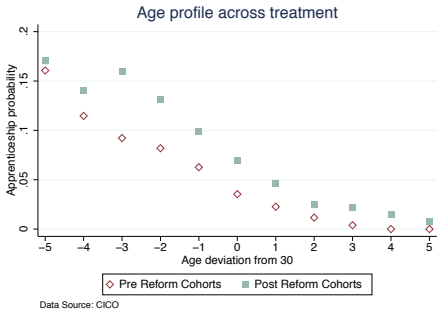
Table A94. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	−0.120***	−0.109***	−0.120*	−0.055
	0.013	0.009	0.061	0.065
Region of birth	−1.803*	−0.141	−1.803	−2.859
	1.090	0.767	7.065	5.819
Education	−1.349**	−3.266***	−1.349	−0.367
	0.580	0.409	3.245	3.371
Missing education	−0.050***	0.005	−0.050	−0.044
	0.012	0.008	0.083	0.068
Past experience	−58.338***	−139.698***	−58.338	−32.652
	18.449	12.990	149.170	128.516
Missing past exp.	−0.000	0.002	−0.000	0.010
	0.010	0.007	0.016	0.030
Region of work	0	0	0	0
	0	0	0	0
Changing sector	−0.135***	−0.092***	−0.135**	−0.135***
	0.011	0.008	0.042	0.042
Regional mobility	−0.014	0.018**	−0.014	−0.033
	0.012	0.009	0.067	0.047
Higher 25 per. monthly job spells	−0.058***	−0.069***	−0.058	−0.052
	0.013	0.009	0.081	0.083
Higher 25 per. monthly sep. flows	0.008	−0.007	0.008	0.012
	0.008	0.005	0.018	0.019
Higher 25 per. monthly net job flows	−0.016	−0.015**	−0.016	−0.003
	0.010	0.007	0.010	0.014
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0.014***	0.007***	0.014**	0.003
	0.002	0.002	0.005	0.006
Higher than 25 perc. soc. insurance benefits	0.001	0.000	0.001	0.001
	0.001	0.000	0.001	0.001

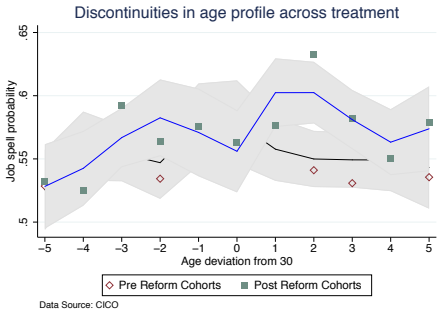
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



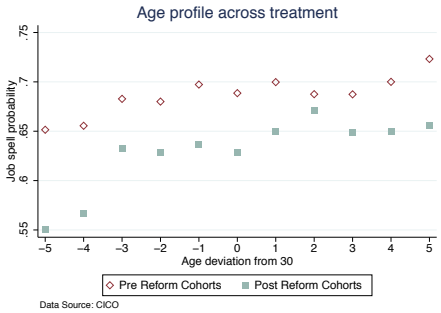
(a) Apprenticeship Probability.



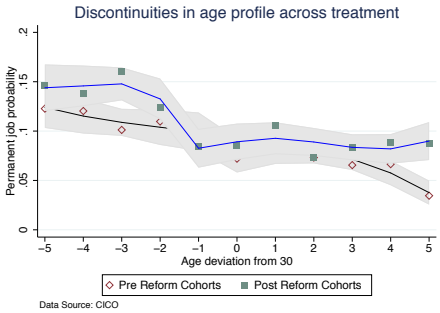
(b) Apprenticeship Probability.



(c) Employment Probability.



(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A19. Difference in discontinuities.

Table A95. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	-.02734	-.02337	-.02411	-.02395	-.01586	-.03063*
	.046	.0327	.03296	.03339	.03399	.01713
Apprenticeship prob.	.00395	.00411	.00522	.00521	.00419	.00444
	.01328	.01335	.0133	.01332	.01318	.01315
Perm. Employment prob.	-.04089**	-.04035**	-.03454*	-.0345*	-.03708*	-.03392*
	.01908	.01905	.01909	.0189	.01948	.01957
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

A1.20. Veneto

Table A96. Apprenticeship probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	602.309	1431.328	0	581.987	1180.089
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		104.167	408.888		18.490	192.984
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	188.550		0.051	166.068
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	46.773		0	18.885
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A97. Employment probability.

	Without DiD specification			**DiD Model specification**		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	4.951	18.800	0	17.114	36.749
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		0.082	2.465		11.147	17.675
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		0	1.081		11.094	15.963
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		0	0.245		0	12.053
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

Table A98. Permanent employment probability.

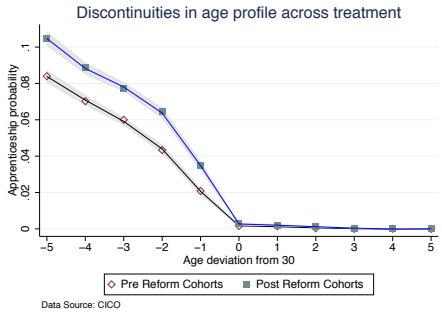
	Without DiD specification			DiD Model specification		
	[-1,1]	[-2,2]	[-3,3]	[-1,1]	[-2,2]	[-3,3]
First Order Polynomial						
LM	0	34.689	63.362	0	28.840	48.487
CV	6.635	11.345	15.086	11.345	18.475	24.725
Second Order Polynomial						
LM		21.883	40.160		18.734	31.199
CV		11.345	15.086		18.475	24.725
Third Order Polynomial						
LM		−0.002	20.793		18.564	30.109
CV		11.345	15.086		18.475	24.725
Fourth Order Polynomial						
LM		−0.002	16.308		0	17.289
CV		11.345	15.086		18.475	24.725

Notes: The null hypothesis of the test Lagrange Multiplier, LM, is that the functional form adopted is statistically equal to an unrestricted regression of the outcome on the full set of dummy variables for the J possible values of age which define the age range reported in brackets. If the statistic exceeds the critical values CV, the null is rejected. Standard error are clustered at the age and year of birth level.

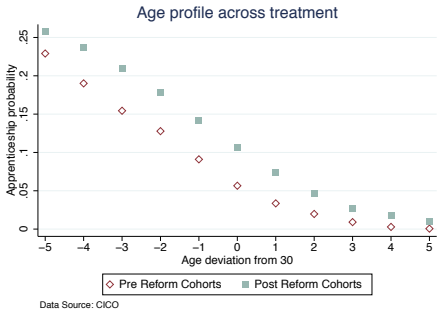
Table A99. Balancing out covariates at the threshold.

	Main Sample			
	Raw data: t-test		Polynomial fit	
	[-1,1]	[-2,2]	[-1,1]	[-2,2]
	DiD	DiD	DiD	DiD
	(Std. Err.)	(Std. Err.)	(Std. Err.)	(Std. Err.)
Gender	0.010***	−0.007***	0.010	0.015
	0.003	0.002	0.011	0.013
Region of birth	−3.502***	−2.321***	−3.502***	−3.957***
	0.208	0.147	0.990	0.997
Education	0.611***	0.025	0.611	0.806
	0.124	0.088	0.853	0.787
Missing education	−0.017***	−0.002	−0.017	−0.022*
	0.002	0.002	0.011	0.011
Past experience	−124.362***	−240.013***	−124.362	−88.283
	4.192	2.939	140.816	142.075
Missing past exp.	−0.020***	0.005***	−0.020	−0.024
	0.002	0.002	0.038	0.038
Region of work	0	0	0	0
	0	0	0	0
Changing sector	0.004*	0.003*	0.004	0.007
	0.002	0.002	0.014	0.012
Regional mobility	−0.027***	−0.020***	−0.027*	−0.032*
	0.003	0.002	0.014	0.016
Higher 25 per. monthly job spells	−0.009***	−0.013***	−0.009	−0.015
	0.003	0.002	0.051	0.051
Higher 25 per. monthly sep. flows	−0.001	−0.001	−0.001	−0.000
	0.001	0.001	0.010	0.010
Higher 25 per. monthly net job flows	−0.004**	−0.004***	−0.004	−0.004
	0.002	0.001	0.018	0.017
Higher 25 perc. hiring incentive	0	0	0	0
	0	0	0	0
Higher than 25 perc. costs reduction	0	0.000	0	−0.000
	0.000	0.000	0.001	0.001
Higher than 25 perc. soc. insurance benefits	−0.000	−0.000	−0.000	−0.000
	0.000	0.000	0.002	0.002

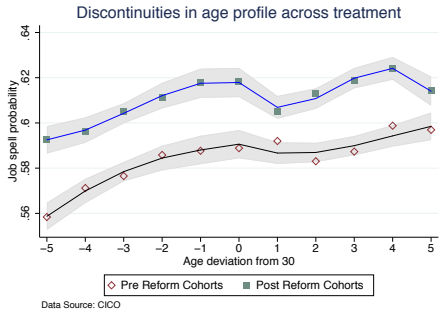
Notes: The independent samples t-test compares the difference in the means from the two groups (treated and untreated cohorts) around the age threshold to zero. The polynomial fit corresponds to a first (third) order polynomial in age when the age range is ±1(2). Each variable defined as higher than the 25th percentile is a dummy variable which is equal to 1 if the job episode sits in a percentile higher than the 25th of the age specific distribution of the covariate of interest, for instance the number of job spells in a given month and year.



(a) Apprenticeship Probability.

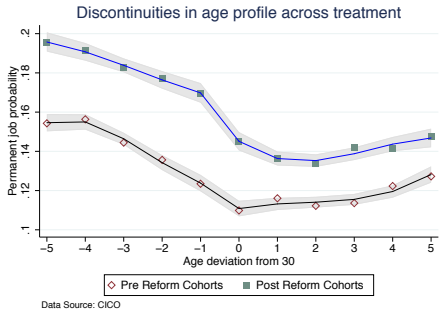


(b) Apprenticeship Probability.



(c) Employment Probability.

(d) Employment Probability.



(e) Permanent Employment Probability.

(f) Permanent Employment Probability.

Figure A20. Difference in discontinuities.

Table A100. Static model estimates.

	Working sample at the baseline					
	(1)	(2)	(3)	(4)	(5)	(6)
Employment prob.	.00411	.00588	.00621	.0061	.00604	-.00073
	.02804	.00822	.00793	.00809	.00773	.00444
Apprenticeship prob.	.01324**	.01324**	.01321**	.01321**	.01316**	.01268**
	.00603	.00585	.00581	.00581	.00571	.00562
Perm. Employment prob.	.0166	.017*	.01692*	.0169*	.01696*	.01726*
	.01164	.00969	.00935	.00935	.00921	.00908
Region of birth fixed effect	YES	YES	YES	YES	YES	YES
Time fixed effect	NO	YES	YES	YES	YES	YES
Sector fixed effect	NO	NO	YES	YES	YES	YES
Firm fixed effect	NO	NO	NO	YES	YES	YES
Time invariant covariates	NO	NO	NO	NO	YES	YES
Time varying covariates	NO	NO	NO	NO	NO	YES

*Notes:*Time invariant characteristics correspond to the real monthly earnings at the time of recruitment, gender, a dummy for missing information on education, past experience. Time-varying baseline characteristics include a dummy if the worker's educational level is higher than the 25th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's educational level is higher than the 75th percentile of the education distribution at a given age in a given month and year; a dummy if the worker's past experience is higher than the 75th percentile of the past experience distribution at a given age in a given month and year; a dummy for changing sector; a dummy if the worker's number of multiple job spells is higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode is associated to a number of job separations higher than the 25th percentile of the corresponding distribution at a given age; a dummy equal to 1 if the job episode is associated to a number of net flows (hirings minus separations) higher than the 25th percentile of the corresponding distribution at a given age; a dummy if the job episode benefitted of hiring incentives higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, a dummy if the job episode benefitted of a labour costs reduction higher than the 25th percentile of the corresponding distribution at a given age in a given month and year, and finally a dummy if the job episode benefitted of social insurance higher than the 25th percentile of the corresponding distribution at a given age in a given month and year.

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