Opting Out, Collective Contracts and Labour Flexibility: Firm-Level Evidence for The Italian Case

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1. Introduction

In the last few years, different types of firm-level derogations from national and sectoral collective bargaining have received growing attention in many European countries, particularly since the 2008 economic crisis. In response to high unemployment rates, academics and policy makers have maintained that firms need more flexibility in bargaining processes (European Commission, 2015). "Controlled forms of deviation (opening, derogation, deviation clauses) as well as less controlled forms (such as general opt-out clauses) have been interpreted as major aspects of the trend towards more decentralized bargaining and a strengthening of flexibility of collective agreements that began in the early 1990s in Western Europe" (Eurofound, 2015, p. 32). Since the Great Recession, these different types of deviations have been accompanied by temporary derogations from national norms and rules set at the sectoral level[1].

The theme of opting out contributes to the discussion of the functioning of two-tier bargaining systems in which multi-employer agreements coexist with firm level or territorial agreements (Boeri, 2014). These collective bargaining systems are still the object of an on-going debate. Two opposing positions seem to have emerged. On the one hand, employers and their organizations emphasize that the decentralization of collective bargaining may remove overly rigid pay and working conditions that have reduced firm competitiveness and caused wide job destruction, especially since the 2008 crisis, and accelerated global competition. On the other hand, workers and their representatives signal that derogations from norms and sectoral agreements might cause only the deterioration of pay and working conditions, resulting in unfair competition, and the loss of the solidarity dimension of collective bargaining beyond the enterprise level (Eurofound, 2015, p. 31). Furthermore, bargaining rules facilitating the adoption of more flexible fixed-term contracts may reduce the incentives to invest in firm-specific human capital for both employers and employees (Pinelli et al., 2017).

Concerning the actual efficacy of general opt-out clauses (OPTC), recent studies – which are mostly available for the German case – have explored their role in explaining the sensitivity of wages to firm-level performance (OECD, 2017a). Fewer studies have been devoted to analysing the impact of OPTC on labour working conditions and their effects on job growth (Brändle and Heinbach, 2013). Totally absent, at least to our knowledge, is research on the actual influence of opting out on the structure of labour demand (open-ended and fixed-term employees) and on the resurgence of labour productivity growth.

Our main research question is to shed light on the Italian case and test the role of OPTC on various dimensions of firm-level labour flexibility, that is, the share of fixed-term contracts on total firm-level employment, labour flows (both creation and destruction of jobs), net job growth and labour productivity.

The Italian experience is valuable in addressing this issue because in this country, after the new norms adopted in 2011 (Article 8, Law 148/2011), firms were allowed to derogate from laws and sectoral agreements on working time and conditions for temporary employment. In the context of policy evaluation, we intend to verify whether the predominant aims of derogations from sectoral agreements have been adjustments in working time to obtain higher job growth rates and improve productivity or if OPTC have favoured mainly the adoption of temporary contracts through a substitution effect with permanent contracts.

Finally, we test whether OPTC, favouring temporary jobs, have encouraged a selection mechanism of more skilled and motivated workers with positive productivity effects or have been associated with low levels of retention and motivation of temporary staff.

We examine these issues using rich firm-level panel data obtained through an employer and employee survey (Rilevazione su Imprese e Lavoro, RIL) conducted by the National Institute for Public Policies Analysis (INAPP) in 2011 and 2015. We have, on average, 2,500 Italian firms from non-agricultural sectors, and the available dataset offers detailed information about industrial relations and firm and worker characteristics.

First, we perform preliminary OLS and fixed effects estimates using OPTC as our key variable. Second, we adopt a policy evaluation framework based on the introduction of Article 8 (Law 148/2011). In this second step, we implement *Diff-in-Diff* estimates combined with the kernel propensity score (KPS_DID) to measure the differences in the outcome variables (labour flexibility, job growth and productivity) that occur between 2010 and 2014 among firms that received the treatment (OPTC firms) versus those that did not (NO-OPTC firms).

We find that in Italy, opting out allows the firm to only enjoy 'marginal flexibility', with progressive changes in the composition of temporary/regular workers and no significant impact on net job growth or labour productivity, as hypothesized by Boeri and Garibaldi (2007).

The paper proceeds as follows. Section 2 discusses the economic literature and the institutional background. Section 3 introduces the data and presents the sample selection issues and descriptive statistics. Section 4 illustrates the econometric strategy and the identification assumptions before discussing the main results. Finally, section 5 concludes.

2. Related literature

2.1 Collective agreements and opt-out clauses in Europe

Sectoral bargaining, which dominates in some continental European countries (OECD, 2017a), has been seen as a potential cause for rigidity concerning labour organisations (i.e., working hours, tasks and assignment of personnel), which does not allow firms to adopt proper strategies to face adverse business phases, particularly when coordination between sectoral and firm-level bargaining is insufficient (Calmfors and Driffil, 1988). This rigid institutional setting may be responsible for limited wage dispersion and negative impacts on employment outcomes, especially when worker representatives have more bargaining power, as suggested by the union employment literature (see, among others, Bryson, 2014 for a short overview). To counter these adverse effects, during recent

decades, some countries have increased the decentralization of bargaining and introduced new measures of flexibility, such as derogations and opt-out clauses, to permit firm-level negotiators to deviate from agreements set at higher levels (OECD, 2017a, p. 18). In countries such as France and Spain, the introduction of OPTC to obtain lower wage increases than those stipulated in the centralized contracts has been exchanged with provisions for short-term work and other forms of working time reduction at the company level (Eurofound, 2015).

However, specific literature aimed at assessing the influence of these derogations is still underdeveloped, and most studies refer to the German case.

Based on the available literature, many different effects can be expected.

First, higher wage flexibility may be obtained by firms that adopt derogations.

Indeed, an extensive decentralization of wage setting, with a wide diffusion of opening clauses, has been one of the main forces enabling German firms to cut unit labour costs and has likely contributed to restoring firm competitiveness (Dustman et al. 2014). Additionally, less productive non-exporter firms, threatened by import competition, have used local wage flexibility, allowed by opening clauses, to face the increase in international competition on product markets (Heinbach and Schröpfer, 2008).

Interestingly, Devicienti et al. (2019) discuss the differences between Germany and Italy in terms of their collective bargaining institutions. They argue that, despite the similar growth in earning dispersion recorded in both countries in the last decades, wage inequalities in Germany are mainly driven by the wage premium dispersion allowed by opting out, whereas in Italy enterprises have been unable to deviate from the wage dynamics set by national sectoral agreements. In Italy, the earning dispersion has entirely occurred between job titles defined by unions and employer associations in national industry-wide agreements, and not by variability in firm wage policies. As Devicienti et al. 2019 suggest "This may explain why, unlike in the German case, the variance of Italian firms' wage policies has not widened over time, despite the fact that also Italy has been exposed to the long-run challenges posed by the introduction of new technologies and increased international competition" (p. 395).

Garloff and Guertzegen (2012) find that workers in Germany obtain a risk premium in exchange for the flexibility potential provided by opt-out clauses. It is likely that employers can afford higher wages if they have the right to reduce wages in times of negative performance. Additionally, Garloff and Guertzegen find that the wage mark-up relative to industry-level contracts is higher for below-average-performing firms compared to their best-performing counterparts. The authors suggest that "this finding is either consistent with a risk premium in exchange for a flexible profit response or, alternatively, with the introduction of opt-out clauses being more likely in industries where the wage level is a priori high" (p. 744).

Along similar lines, Ellguth *et al.* (2014) find higher wages in firms where opting out is possible and lower wages when opt-out clauses are actually applied. According to their interpretation, employers

can afford higher wages if they have the right to reduce wages in times of negative performance. Furthermore, these authors examine the interaction between works councils and opening clauses and show that works councils can counteract wage reductions induced by the application of opening clauses at the establishment level.

In the same line of research, but in terms of responsiveness to business cycles, Brändle and Heinbach (2013) examine the role of opening clauses on job flows, such as job creation and destruction, verifying the distinct role of i) the possibility of OPTC, ii) knowledge of this possibility, and iii) the actual application of OPTC. The authors obtain a positive but non-significant effect of the possibility of OPTC on job flows, whereas explicit knowledge and their actual application have no additional effect. They suggest that the mere possibility of OPTC may induce firms to hire more employees in periods with good economic conditions because they anticipate having the potential to cut labour costs in the case of worsening economic conditions. Hence, more wage flexibility and shorter working hours should decrease the rate of job destruction in times of crises. However, when economic conditions improve, firms will likely have to restore working hours and meet wage demands to compensate employees for their losses, thus causing lower rates of job creation. Hence, job creation does not exceed job destruction, and gross job turnover is not spurred by OPTC (Brändle and Heinbach, 2013).

2.2 The Italian institutional setting

The Italian regulation of collective bargaining has been defined by the 1993 Protocol, which established a two-tier bargaining framework based on the centrality of national sector-wide agreements (the first bargaining level) and limited space for decentralized bargaining at either the company level or territorial level (the second bargaining level), without the possibility of opting out. Decentralized bargaining was hierarchically secondary to national sectoral agreements and could cover issues not included in national sectoral agreements (*the non-repeatability clause*). Concerning remuneration, the second bargaining level was intended to amplify the incentive effects of the relative wage structure and to negotiate pay bonuses correlated with the achievement of productivity or profitability targets. Since the 1993 Agreement, Italy has become the Eurozone country with the highest share of employee contracts regulated by collective sectoral agreements (as documented by the Structure of Earning Survey of 2014) and with limited coverage of second-level bargaining. For our national sample of private no-agricultural firms, we observe that more than 90% of these enterprises had first-level sectoral bargaining in 2010 and 2014, whereas only approximately 17%[2] had decentralized agreements (mainly at the firm level or, in only a few cases, at the territorial level). More details for firms adopting or not adopting OPTC are reported in Table A.2 in the Appendix.

The current representation model is based on 'unitary workplace union structures', the so-called Rappresentanze Sindacali Unitarie (RSUs). These bodies have some of the main characteristics that usually typify works councils. They are elected by all employees but also are strictly linked to unions because workers' representatives are elected from candidates of trade union lists (D'Amuri and Giorgiantonio, 2015). RSUs participate in firm-level negotiations, which usually include both

performance-related pay and working conditions and can stipulate company agreements. RSUs also flank the other firm-level bodies, Rappresentanze Sindacali Aziendali (RSAs), which are present in firms with more than 15 employees (as envisaged under Article 19 of Law 300/1970, the Workers' Statute), are designed by trade unions and represent only union members.

In the last few years, the Italian bargaining structure has been the subject of much discussion, especially after the 2008 crisis. The call for the progressive erosion of the centrality of national sectoral agreements culminated in the initiatives of the Fiat group; this corporation stipulated on 2010 a group-level stand-alone agreement (*first-level contract*) and derogated from the national sectoral agreements (Eurofound, 2012). One year later, in 2011, parliament approved the 148 Law, whose main provision for industrial relations (Article 8) was the opportunity, for the first time, to derogate from national norms (mainly to introduce variations to working-time arrangements and rules for temporary contracts) and industry-wide agreements by decentralized (firm-level and territorial) bargaining. With this measure, company- and local-level agreements, named 'proximity bargaining', could legally derogate in pejorative terms not only from the industry-wide collective labour contracts but also from national norms. Thus, the 2011 reform made it possible to negotiate less favourable conditions for workers than those established by norms or sectoral contracts. The OPTC agreements would be effective for all workers involved, as long as these agreements were signed – based on a majority vote – by the most representative of the employees' associations at the national or territorial levels or by their firm-level representatives (RSU or RSA). In cases of firm-level contracts, but not in territorial ones, the OPTC applications were conditioned by RSU or RSA approval.

The derogations concerned the following main issues: tasks and grading of staff, the classification and assignment of personnel, conditions for the adoption and renewal of fixed-term contracts (FTCs) and the transformation and conversion of working contracts, agreements on working hours and less restrictive hiring and firing rules. One rationale behind the possibility of deviations on these matters was that these derogations could allow firms to handle temporary economic difficulties and uncertainties without resorting to a massive reduction in their workforce. The only constraints were the impossibility of derogating from norms on unfair dismissals and the mandatory compliance with the Constitution (D'Amuri and Giorgiantonio, 2015).

Particular attention must be paid to conditions for the adoption of FTCs. After the mid-1990s, Italy, similar to many other European countries, permitted progressive liberalization by increasing the number of 'objective situations' that require positions of fixed duration or increasing the number of renewals of successive FTCs with the same firm and the maximum cumulative duration of FTCs (OECD, 2013, p.88). In Italy, these reforms are associated with the maintenance of strict regulations on open-ended contracts. These reforms (particularly the so-called Treu Package of 1997, the Decree Law 368/2001 and the Biagi Law of 2003) increased the flexibility of labour market entry not via radical de-regulation but re-regulating employment relationships and specifying conditions and circumstances for the use of non-standard forms of employment (OECD, 2009). The legal changes

thus allowed more opportunities but also imposing conditions for the adoption of fixed-term contracts, for instance, setting the maximum duration of FTCs at 36 months. In 2012, with a new labour market reform (the Fornero Law, n. 92), some additional restrictions were imposed. For the case of two separate contracts with the same employer, a mandatory interruption of at least 90 days since the expiry of the first contract was introduced (instead of 10-20 days as established by previous legislation), and restrictions of valid cases for fixed-term contracts were introduced. In addition, for fixed-term contracts, an increase of 1.4% of social security contributions was imposed, and this amount was partly recoverable only if the contract was transformed into a permanent contract. With opting out, firms could derogate from these norms, extending the maximum duration of fixed-term contracts to over 36 months, reducing the interruption to less than 90 days between two fixed-term contracts and reducing the social security contributions of these contracts by 1.4%.

2.3 Contractual flexibility, fixed-term contracts and research questions

More contractual flexibility allowed by OPTC could be based on internal labour flexibility (working hour adjustments) or external labour flexibility (increase in FTCs). For the case of Germany, Brändle and Heinbach (2013) examine the role of opening clauses and find that these clauses favoured working hour adjustments but also left job creation and destruction almost unchanged, with no significant effects on job growth.

As for external flexibility, the available literature has shown that FTCs present a number of advantages and disadvantages (see the short review by Eichhorst, 2014), with potential opposing effects on net job growth.

Concerning positive aspects, temporary contracts represent good opportunities for new entrants to the labour market, providing a probationary period and easing the transition from inactivity or education to employment, as shown by matching models (Abowd *et al.*, 1999; Boeri, 2010). In addition, these contracts may be used as a buffer stock when firms face seasonal or cyclical fluctuations and enable them to quickly respond to recurrent changes in the state of demand (Bentolila and Saint Paul, 1992). Furthermore, these arrangements may serve as a screening device for the selection of motivated and talented employees. Workers who have initial temporary contracts but expect to later obtain a permanent position are motivated to commit much effort and acquire specific human capital to qualify for better positions. Thus, probationary posts can be "stepping stones into good permanent jobs" (Booth et al. 2002, p. F195).

In terms of disadvantages, fixed-term contracts may be 'dead ends' rather than a pathway to a stable position. Indeed, these contracts are not desirable as long-term careers because they systematically pay less than corresponding permanent contracts and are associated with lower job satisfaction and less work-related training (Booth et al., 2002). In more detail, Bosio (2014) found for Italy that controlling for individual unobserved heterogeneity reduces the wage gap between regular and temporary workers, but part of the wage penalty remains. Additionally, an increase in the degree of precariousness inside the firm can lead to a deterioration in the working environment and thus reduce workers' motivation and effort (Battisti and Vallanti, 2013, p. 762). The presence of temporary workers, implying a lower dismissal probability for permanent workers, lessens their motivation and

effort. Thus, the liberalization of FTCs contributes only to the dualization of the labour market (Eichhorst, 2014) and creates a segment of the labour force engaged in low-quality jobs (the 'entrapment' hypothesis). Boeri and Garibaldi (2007) showed that in a context where no radical interventions have been adopted, the liberalization of FTCs exerts only a transitional 'honeymoon effect' on net job growth. Indeed, employment increases reveal no lasting effect because when the stock of insiders hired on permanent contracts is phased out by natural turnover, fixed-term employees replace open-ended contracts.

In our study, we expect that in the absence of a number of radical reforms, such as those implemented in Germany (Jacobi and Kluve, 2007) with improved active labour market policies and the re-organization of public employment services, opting out is only a partial measure that allows the firm to enjoy 'marginal flexibility'.

Below, we will test whether giving more flexibility to firms engaging in decentralized bargaining through opt-out clauses has increased their propensity to employ temporary workers. Second, we will investigate whether the higher flexibility allowed by opt-out clauses has induced higher job flows (hiring and separations), which in turn positively affects the net job turnover rate and labour productivity. Should the latter increase, derogations from industry-wide collective agreements can restore a reasonable level of flexibility. Conversely, if opt-out clauses result in more fixed-term contracts without significant effects on net job creation and labour productivity, it would mean that only a sizeable composition effect on the workforce occurred. Hence, the introduction of OPTC might represent a partial reform that only allows firms to gradually adjust the stock of permanent workers downwards (Boeri and Garibaldi, 2007).

3. Data and descriptive statistics
3.1 Data

This study uses information obtained through an employer and employee survey (Rilevazione su Imprese e Lavoro, RIL) conducted by INAPP in 2011 and 2015 on a representative sample of partnerships and limited liability firms operating in the extra-agricultural private sector. The RIL survey collects a rich set of information about employment composition, personnel organization, industrial relations, management and other workplace characteristics. In particular, we have information about ownership structure and the individual management profiles (see more details below), which proxy for managerial practices. This information offers the great advantage of controlling for important sources of firm heterogeneity, as emphasized in previous literature (Bloom and van Reenen, 2007).

The RIL questionnaire provides data about the existence or non-existence of a second level of bargaining, and each sampled firm in the RIL surveys was asked whether it had adopted a firm-level contract. In 2014, an additional section was inserted into the RIL questionnaire to collect information about opting out. Each respondent firm was asked whether it signs a firm-level agreement in derogation of laws and national collective contracts, as introduced by Article 8 of Law 148/2011. This

information permits the establishment of a policy evaluation framework (Imbens and Wooldridge, 2009) because we can compare the outcomes of firms adopting or not adopting OPTC before and after the introduction of the 2011 Law.

The dataset also contains useful firm-level information for our five dependent variables (outcomes): the share of FTC, the shares of new hiring and total separations[3], net job turnover, measured by the difference between hiring and separations over the total number of employees (which offers information on net job growth) and a proxy for labour productivity: the sales/employee ratio.

As for control variables, we add information about *i)* management and the corporate governance of companies (manager education, information on family or non-family ownership and management of the firm), *ii)* workforce characteristics (occupation, gender, age, education and training) and *iii)* other firm characteristics (size, product and process innovation, exports). The presence of unions and employers' associations is supplementary information within the set of other firm characteristics, in addition to other categorical variables describing economic activities (Nace Rev.2 aggregations of 2 digit sectors) and regions (NUTS1). Table A.1 in the Appendix shows more detailed definitions of all variables used in the empirical analysis.

The empirical analysis is performed on firms with more than 15 employees. The choice of this threshold is motivated by Italian legislation, which, before the introduction of the so-called Jobs Act on December 2014, placed more stringent regulations on firms with more than 15 employees. In our case, this threshold allows us to also identify those firms where the presence of Italian work councils, the so-called "Rappresentanze Sindacali Unitarie" (RSU), are established by law; these bodies are entitled to call general meetings and referendums and may influence collective agreements, as well as, at least potentially, signing opt-out clauses at the workplace.

After imposing this selection criterion and deleting observations with missing values for the variables used in the empirical analysis, our final sample is approximately 2500 firms, observed in both 2010 and 2014.

3.2 Descriptive statistics

Table 1 reports the summary statistics for the RIL sample over the 2010-2014 period. Looking at our outcome variables, we note that the share of fixed-term contracts (FTCs) declines from 12.73% in 2010 to 8.54% in 2014; the declining trend in FTCs pairs with a significant reduction in both hiring (from 13.35% in 2010 to 9.41% in 2014) and separations (from 13.51% in 2010 to 8.95% in 2014), resulting in stagnant net job creation over the period under study. All these features are coherent with the comparative picture presented by the European Commission (2015), where Italy is described as a country especially hit by the sovereign debt crisis that started in 2011. Since 2011, a remarkable increase in the unemployment rate has transitorily reduced the propensity to employ temporary workers and flattened the net job creation.

[Please Insert Table 1]

In addition, we observe a slight increase in performance between 2010 and 2014, as evaluated in our case in terms of sales per capita (from 11.70 to 11.82 in log values) and as underlined by several reports (see OECD, 2017b, and Bugamelli *et al.* 2018, among others).

Turning our attention to management and corporate governance, Table 1 shows the low education levels of Italian employers (29.29% and 35.55% of firms in 2010 and 2014, respectively, are led by someone with a tertiary degree), a feature that may reflect the high proportion of family ownership (82.09% in 2010 and 75.44% in 2014) and the limited presence of managers recruited outside dynastic ties (5.14% in 2010 and 9.02 in 2014%).

During the 2010-2014 period, the structure of the workforce shows a slight increase in the average educational endowment and in professional composition, while we observe a significant increase in the share of trained workers (from 25.52% in 2010 to 40.96% in 2014) and, conversely, a sharp reduction in 'young' workers who are less than 35 years old (from 32.61% in 2010 to 24.49% in 2014).

The average incidence of unionized firms increased from 30.92% to 38.95%, while firms belonging to an employer's association slightly increased from 68.58% to 70.99%.

Concerning firm strategies, the number of Italian firms that weathered the crisis by relying on international markets increased, showing the potential role of the increase in the number of exporting firms from 2010 to 2014 as a strategic response to compensate for the contraction of domestic demand. This strategy may partly explain the slight increase in performance observed in the same period (see outcome variables). Finally, the geographical location shows the higher number of firms operating in the northern part of Italy (to save space and improve the readability of the table, we do not show the distribution of firms across sectors. These results are available upon request.)

A more detailed descriptive analysis is shown in Table 2, which reports separate summary statistics for two distinct groups of firms, i.e., firms that in 2014 declared to have adopted (OPTC) or to have not adopted (NO-OPTC) opt-out clauses after 2011[4]. Column *Diff* reports the significance levels of the differences between the means of these two categories of firms. The last row of this table shows that 192 OPTC firms (approximately 8% of the total sample) entered the group of treated firms.

[Please Insert Table 2]

The comparison shows that in 2010, the OPTC firms featured some specific traits. These firms were significantly more unionized and recorded, with respect to NO-OPTC firms, a lower incidence of FTC (9.81% vs. 12.83%), which is likely due to the opposition of unions to this type of contract. Notice that in 2010, OPTC firms also presented lower inflows with respect to NO-OPTC firms (their hiring was 9.76% vs. 13.48%) and not statistically significantly lower outflows (their separations were 11.85% vs. 13.57%). Concerning net labour turnover, we observe a negative balance for OPTC firms (-2.09%), which is significantly lower with respect to the positive value for NO-OPTC firms (+ 0,04). Table 2 also shows, at least at a first sight, that after the adoption of OPTC, these firms restored some degree of flexibility, which enabled them to avoid job losses (the net turnover that was negative in 2010 was approximately nil in 2014) without adopting a higher share of fixed-term contracts, which remained almost stable in OPTC firms. Notice, in any case, that the p-values of t-tests of differences

between means, distinct by status, signal that in 2014, for our outcome variables there were no more significant differences between OPTC and NO-OPTC firms.

Interestingly, concerning the climate of industrial relations, we observe an overall increase in unionization. This change is much higher, from 77.09% to 91.80% between 2010 and 2014, in OPTC firms and particularly meaningful, as the decision to deviate from sectoral agreements and norms requires, by the 148/2011 Law, the approval of RSUs or RSAs. This condition, as stated above, is compulsory at least in firm-level agreements, which represent 91.80% of decentralized bargaining, whereas only in territorial contracts (a small fraction) are derogations possible without the approval of firm-level worker representatives.

Table A.2 in the Appendix shows additional features of the Italian labour bargaining system. These statistics do not enter the econometric analysis and are intended only to integrate the discussion of the institutional setting. From Table A.2, we observe that more than 90% of both OPTC and NO-OPTC firms adopted a sector-wide agreement (first-level bargaining) between 2010 and 2014. The second-level bargaining occurred mainly at the firm level and involved 13.7-14.9% of NO-OPTC firms. In conformity with bargaining rules, all firms that adopted an opt-out agreement in 2014 introduced this clause in a second-level contract. For this group of firms, the percentage of firms involved in territorial-level agreements, which are a type of second-level bargaining, was slightly less than 9%. The p-value tests indicate that in both years, OPTC firms were more unionized and more involved in first-level, firm-level and territorial-level bargaining with respect to NO-OPTC firms.

Finally, notice that the presence of OPTC firms that are not unionized is explained by the fact that in territorial contracts, as said in section 2.2, a small fraction are derogations possible without the approval of firm-level worker representatives.

From descriptive statistics, one can be tempted to assess the beneficial impacts associated with contractual deviations (OPTC) obtained in terms of job flows. However, many confounding factors may be behind these results because, from Table 2, one can also observe that OPTC firms are substantially different from their NO-OPTC counterparts. In particular, the large heterogeneity we observe among the covariate distributions at baseline (that is, in 2010) may be an important source of selection bias. Indeed, OPTC firms have a more qualified management and workforce and adopt more active strategies in terms of orientation to foreign markets, training and innovation. In addition, in 2010, the proportion of OPTC firms owned or controlled by families was approximately half of that observed in the NO-OPTC group (47.1% vs. 83.3%), and the share of firms with outside managers (instead of dynastic managers) was approximately three times that found among NO-OPTC firms. Note also that OPTC firms showed a higher percentage of executives (in 2010 8% vs. 3.9%), had more intense training activities (33% vs. 25.3 %) and were more frequently under the leadership of management with high educational degrees (57.4% vs. 28.3%). Finally, these enterprises were more exposed to international competition as exporters (53.4% vs. 38.2%) and more active in terms of innovation (77.2% vs. 62.7%). All these differences in characteristics between OPTC and NO-OPTC firms are statistically significant, as shown by the p-values of difference between means (column *Diff*). They raise concerns about the randomization with which firms adopted opt-out clauses and call

for econometric methods that complement the conventional ones to test the robustness of results and reduce the potential selection bias.

4. Econometric analysis
4.1 Methods

The descriptive statistics summarized above can form the basis of a more thorough investigation into the role of opt-out clauses. The first step of the econometric analysis is based on a simple linear relationship specified as follows:

$$Y_{i,t} = \alpha + \beta \cdot OPTC_{i,t} + \boldsymbol{\gamma} \cdot \boldsymbol{MC_{i,t}} + \boldsymbol{\delta} \cdot \boldsymbol{WC_{i,t}} + \boldsymbol{\lambda} \cdot \boldsymbol{FC_{i,t}} + t + \mu_s + \vartheta_r + \varepsilon_{i,t} \quad (1)$$

t=[2010,2014]; i=[1,…4,869]

where Y_{it} indicates, alternatively, for each *i-th* firm, one of the following dependent variables: i) the share of fixed-term contracts (FTC); ii) the share of new hiring; iii) the share of total separations, which includes layoffs, retirements and voluntary separations; iv) the net job turnover; and v) the sales per capita. Our key explanatory variable, $OPTC_{i,t,}$ is a dummy variable indicating whether the *i-th* firm adopts an opt-out clause, i.e., deviations in firm-level agreements from sectoral collective agreements. The vectors $MC_{i,t}$, $WC_{i,t}$, and $FC_{i,t}$ include controls for management, workforce and other firm characteristics, respectively. All these covariates have already been discussed in Tables 1 and 2 (for more details on their construction, see also Table A.1 in the Appendix)[5]. Furthermore, t is a time dummy taking a value of 1 in 2014; μ_s captures sector-specific effects, while ϑ_r controls for regional (NUTS1 level) effects. Finally, $\varepsilon_{i,t}$ is the error term capturing the idiosyncratic component of the dependent variable.

To test the research question discussed above, equation (1) is preliminarily estimated by performing a standard pooled OLS regression. However, the OLS strategy is not suitable to control for potential unobserved heterogeneity, i.e., those time-invariant firm-specific characteristics that might "confound" the impact of the variable $OPTC_{i,t}$ on our dependent variables. Hence, we take advantage of the panel structure of the RIL data and circumvent the omitted variable biases by performing fixed effect estimates (FE). Unfortunately, our data contain only two years, and thus, the variability within firms of many explanatory variables is limited (Wooldridge, 2010). However, we can exploit the availability of our panel data (2010, 2014), given that the policy change occurred in this interval (in 2011), thus allowing the adoption of a policy evaluation framework by means of the difference-in-differences (*Diff-in-Diff*) estimator.

We identified treatment and control groups. That is, we exploit (i) the existence of data for the pre- and post-policy change periods and (ii) the availability of a rich set of covariates that control for observable characteristics of the firms included in the longitudinal component of our sample. We assign to our treatment group those firms declaring in 2014 to have adopted an opt-out clause as a

consequence of the introduction of Article 8, Law 148/2011. For the non-experimental control group, we consider all firms that did not adopt an opt-out clause examined before and after the reform. In other words, to reduce self-selection bias, we compare treated firms (OPTC=1) and control firms (OPTC=0) at the baseline (2010) and endpoint (2014). Thus, the second step of our econometric analysis implies the following *Diff-in-Diff* specification:

$$Y_{i,t,OPTC} = \alpha_{OPTC} + \beta_1 \cdot OPTC_i + \beta_2 \cdot t + \beta_3 \cdot OPTC_i \cdot t + \gamma \cdot MC_{i,t,OPTC} + \delta \cdot WC_{i,t,OPTC} +$$
$$+ \lambda \cdot FC_{i,t,OPTC} + \mu_{s,OPTC} + \vartheta_{r,OPTC} + \varepsilon_{i,t,OPTC} \qquad (2)$$
$$t=[2010,2014]; \ i=[1,\dots 4,869]$$

where the subscript OPTC indicates that we estimate over time (2010 and 2014) the parameters of interest for treated (OPTC=1) and control firms (OPTC=0).

It is worth noting that the *Diff-in-Diff* impact is the parameter β_3 of the interaction term $OPTC_i \cdot t$.

4.2 Identification assumptions

The identification of an unbiased coefficient β for OPTC in the panel data fixed effects specification of equation (1) relies on the crucial assumption of time-constant unobserved firm-level characteristics (Wooldridge, 2010). However, it could still be possible that unobserved characteristics are time-varying factors. We use a very large set of covariates that control for many potential confounders – not only exports and innovation performance but also a number of workforce characteristics – corporate governance aspects, and managerial traits, among others. If unobserved time-varying factors exist and are correlated at the same time with OPTC and our dependent variables, the fixed effects specification for OPTC in equation (1) would be biased, which means that we can observe OPTC adopting different hiring and firing strategies simply because these firms experienced a number of period-specific changes and not because they opted out of collective agreements. In this case the β parameter does not identify a casual effect.

Unfortunately, discovering external sources and instruments to restore the randomization of OPTC is a very difficult task. Instead, as we did in equation (2), the two-period structure of our panel data allows us to set up a *Diff-in-Diff* specification. This alternative strategy is not free from troubles and relies on important assumptions, which we discuss below.

The *Diff-in-Diff* impact of equation (2) is identified by subtracting the pre-existing differences between treatment and control groups at the baseline from the mean difference in these groups at the endpoint:

$$\left(Y_{i,2014,OPTC=1} - Y_{i,2014,OPTC=0}\right) - \left(Y_{i,2010,OPTC=1} - Y_{i,2010,OPTC=0}\right) = \boldsymbol{\beta}_3 \ (3)$$

The first crucial assumption for the *Diff-in-Diff* impact $\boldsymbol{\beta}_3$ being unbiased is the so-called *common trend assumption (*CTA*)*, which means that we should observe parallel trends in the outcomes of treated and control units in the absence of the treatment (that is, the introduction of Article 8, Law 148/2011). If the CTA holds, the *Diff-in-Diff* estimator has the advantage, compared to the fixed

effects estimator, of removing any common period effects that influence the treatment and control groups in identical ways (see Gebel and Voßemer, 2014). The limited longitudinal structure of our data (only two years) makes it impossible to directly test the CTA. However, to make the CTA more plausible, we performed a *kernel-based propensity score Diff-in-Diff*, KPS_DID (Rosenbaum and Rubin, 1983; Heckman *et al.*, 1997, 1998; Gebel and Voßemer, 2014). Through the KPS_DID, we first measure the probability of adopting an opt-out clause conditional on the large set of covariates proposed above. These different probabilities enter the *Diff-in-Diff* estimation of equation (2) as weights that give different importance to the control firms in order to properly approximate the counterfactual, that is, the values of the outcome variables that opting out firms would have shown if they had not opted out. Although the kernel propensity score does not rule out potential biases stemming from unobservables, this procedure allows us to compare, as much as possible, treated and control firms as statistical twins (Gebel and Voßemer, 2014) so that they have common support. We can test the effectiveness of the kernel propensity score in guaranteeing the so-called *common support condition.* This test (see Table A.3 in the Appendix) allowed us to determine whether the propensity score method is useful for reducing heterogeneities between the treated and control groups before the treatment.

The second crucial assumption underlying our *Diff-in-Diff* strategy is that all potential biases rely on *selection on observables*. In other words, we assume that our set of covariates is large enough to include all factors determining the self-selection of firms in the OPTC status. Indeed, adding proxies of managerial capabilities and corporate governance to the standard controls for firm and workforce characteristics should make the *selection on observables* assumption less difficult to accept because, in most recent literature, both the management and governance traits of the firm are viewed as important sources of unobserved heterogeneity (Bloom and Van Reenen, 2007; Berrone et al., 2012).

That said, we are aware that the estimated effect of opting out on labour outcomes might still suffer from endogeneity problems because OPTC may be correlated with different pre-reform trends that we cannot directly observe. Using the KPS_DID approach is the best we can do given the data we have, that is, a two-year panel data sample. For this reason, we will discuss the econometric results with due caution and avoid interpreting them in terms of a causal effect of OPTC on our five labour outcomes.

4.3 Results

Table 3 reports the pooled OLS results[6]. Focusing on the contractual arrangements, we note that the application of opt-out clauses is associated with an increase in the FTC share (+2.8 percentage points, p.p. hereinafter) that is significant at the 1 per cent level.

[Please Insert Table 3]

From the other columns of Table 3, it is also interesting to compare the positive and significant coefficients associated with new hiring (+4.2 p.p.) and separations (+3.0 p.p.). The result for net turnover, which are not significantly different from 0, suggests that the adoption of an opt-out clause does not encourage the creation of new jobs. In addition, our estimates show that the productivity

gains (8.5%) associated with OPTC are not significantly different from 0 (see the fifth column of Table 3). From these preliminary results, taken as a whole, it is plausible to conjecture that deviations from collective sectoral agreements have represented a way for Italian firms to obtain more flexibility in staff composition and have allowed them to substitute permanent with temporary contracts, whereas the additional new entrants in their workforce compensate only for the number of exits. This higher labour mobility, however, does not seem to foster substantial productivity gains.

As expected, we obtain the results above in a context in which unions contrast with labour mobility (-1.9 p.p. the hiring rate and -0.9 the net job turnover) and seem to oppose FTCs (-3.6 p.p.), likely because temporary workers represent a threat to union bargaining power (Devicienti et al. 2018; Salvatori, 2012). In addition, after the outbreak of the sovereign debt crisis in Italy (see the coefficients for *year 2014* in Table 3), the share of FTCs slightly declined (-0.7 p.p.) and overall labour hoarding negatively affected both hiring (-1.6 p.p.) and separation rates (-1.9 p.p.). If we bear in mind that retirements are included in the separation rate, it is plausible to assume that the negative effect on the separation rates is likely due to the pension reform launched in December 2011 (Law 214/11), which notably increased the average retirement age (Borella and Coda Moscarola, 2015). As a consequence of this reform, the overall labour hoarding is also signalled by the increase in training activities after 2011 (Berton *et al.*, 2017).

Interestingly, improvements in labour productivity (see the coefficients for *ln sales per capita* in the first three columns of Table 3) appear to be negatively associated with these job flows, mainly supported by the propensity to employ temporary workers.

We notice, however, that previous results obtained from pooled OLS regressions may be misleading when the introduction of a set of explanatory variables is not sufficient to circumvent potential omitted variable biases due to the time-invariant unobserved characteristics. We address this issue with fixed effect estimates (FE) of equation (1). The results of the FE estimates (Table 4) substantially confirm the previous findings, even though both the magnitude and the significance of the impact of OPTC on the dependent variables describing labour mobility (hiring, separations and net job turnover) become slightly smaller. Table 4 indicates that the adoption of OPTC is associated with an increase in FTC (+1.6 p.p.), while the positive estimates for total hiring (+2.7 p.p.) and separations (2.5 p.p.) seem to substantially offset each other, so that no significant influences on net job turnover have been estimated. Again, OPTC does not seem to improve labour productivity, and results concerning the covariates are largely coherent with those discussed in Table 3. Thus, fixed effects estimates suggest that once the potential time-invariant unobserved heterogeneity is taken into account, no excessive biases for the OPTC coefficients emerge in comparison with the pooled OLS estimates (Table 3).

[Please Insert Table 4]

Other important concerns might strongly affect the results above, and further robustness checks are needed. First, using a within estimator for only two years does not guarantee sufficient variability in the data and consistent estimations. Instead, given that the policy change occurs between 2010 and 2014, a *Diff-in-Diff* specification seems to be much better suited. Moreover, as discussed in section 4.1, we know from the descriptive statistics (see Table 2) that firms adopting an opt-out clause after

the introduction of Law 148/2011 are different with respect to those that did not. In econometric terms, this large imbalance in the characteristics of treated and control firms boosts the risk of self-selection bias even in the case of *Diff-in-Diff* because it undermines the validity of the *common trend assumption*. To reduce this risk, we combine the *Diff-in-Diff* and the propensity score matching (KPS_DID), thus adjusting both the dependent and the other observable variables for pre-treatment (pre-reform). Table A.3, in the Appendix, shows the results for the *common support condition* test. Indeed, after calculating a *kernel propensity score*, we obtain very similar conditions at the baseline (2010) for the control and treated groups, as differences in means are no longer statistically significant for almost all variables.

The final results for the *KPS_DID* after imposing the *common support condition* are reported in Table 5. For each outcome, this table shows the differences between treated and control group averages before and after the introduction of the 148/11 Law and the final *Diff-in-Diff* impact; the *p_values* inform us of their statistical significance (for this analysis, we used the Stata routine *Diff*).

[Please Insert Table 5]

On the whole, we can say that the findings previously obtained with pooled OLS and FE estimates are largely confirmed. In particular, if we pair firms with the same characteristics, we find that the OPTC firms did not employ more temporary workers than their peers before the introduction of the 148/2011 Law, i.e., 8.2% vs. 7.6%, respectively, and the 0.6 p.p. difference is not statistically significant. In contrast, in the follow up, firms derogating from the collective bargaining rules increased the share of FTC to 9.0%, whereas control firms reduced the employment for this category of workers to 6.5% of total employees; thus, the 2.5 p.p. difference in 2014 is statistically significant. Overall, OPTC firms significantly increased their share of temporary workers between 2010 and 2014 by 1.9, p.p. and this *Diff-in Diff* is statistically significant at the 1% level.

We find very similar results for the *Diff-in-Diff* impact in the separation rates, which significantly increased by 2.2 p.p. and hiring rates (+2.4 p.p.); all these coefficients are statistically significant at the 5% level.

However, there was no significant difference in net job creation (Table 5, column NJT) between the treated and control groups either before or after the introduction of the 148/2011 Law. Thus, consistent with the previous results, the *Diff-in-Diff* impact (0.3) was not significantly different from 0. Finally, our estimation also shows no significant benefits in terms of productivity for firms that deviated from the collective bargaining systems (the 0.075 difference in log points is not statistically significant).

4. Conclusions

In this paper, we study the impact of opt-out clauses on firms' hiring policies, adoption of fixed-term contracts and labour productivity in the Italian economy. The 148/2011 Law established for the first time the possibility for firms to derogate in pejorative terms not only from industry-wide collective labour contracts but also from national norms. Because we observe Italian firms before and after the introduction of the 2011 Law, we can analyse the impact of this measure within a policy evaluation framework. After we control for a wide set of confounding factors, we find that adopting

an opt-out clause notably increases job flows, as both hiring and separations grow. These positive impacts on hiring and exit balance out, without significant variations in terms of net employment. In addition, no significant labour productivity gains are obtained by firms that deviate from collective bargaining rules. The only significant change we find concerns the composition of the workforce, as in OPTC firms, the share of temporary workers rises. These results are obtained with econometric methods, such as fixed effects and *Diff-in-Diff* combined with the propensity score, which try to account for unobserved heterogeneity and self-selection issues.

These imperfect methods are complementary and suggest consistent results, although our data do not allow us to adopt other estimation strategies to ascertain a causal nexus between opting-out and the labour market indicators under study. In any case, we believe that providing new empirical evidence on an important and still under-explored issue in the current debate on collective bargaining remains an important value added of this study.

To better appreciate the meaning and scope of our results, let us compare our findings with those obtained in other studies for Germany, a country for which the literature on opt-out practices has flourished in the last few years. In Germany, the deviations from collective sectoral agreements and the apparent de-institutionalization of industrial relations contributed to a re-institutionalization and to the formation of 'local alliances' between firm actors, management and employee representation (Haipeter, 2011; Fitzenberger *et al.* 2013). The German case, as noted by Visser (2016, p. 20), is "an illustration of how something that began as a temporary local solution for firms to survive and for employees to rescue their jobs can become institutionalized as a permanent extra layer in collective bargaining."

In Italy, on the contrary, enterprises have been unable to adopt opting out to obtain heterogeneous compensation strategies and ensure a flexible adaptation process to the same underlying market forces faced by German firms, such as globalization and technological changes (Devicienti et al. 2019). In the Italian context, the process of negotiating firm-level contracts, which set lower standards than those adopted by sector-level agreements, merely signals the progressive erosion of the protective function of collective bargaining. Our results suggest the inefficacy of derogation practices in expanding opportunities for workers, likely because neither labour market entrants nor existing workers benefit from concessions in terms of opening vacancies, skill acquisition and job protection. Rather than being a "safety valve" (Visser, 2016, p.32), opting out represents an escape towards more flexible labour arrangements, such as fixed-term contracts. In this process, the room to manoeuvre for the mobilization of workers and their representatives in demanding high-road innovation strategies through concessionary bargaining is severely restricted. These results are highly relevant for current policy discussions.

After the 2018 approval of more restrictive regulations on non-standard employment (see the Dignity Decree, 12/7/218, n.87), contractual deviations from these new regulatory constraints are currently seen as a strategy to weather the prolonged period of economic stagnation. However, our findings may inform policy makers who promoted opt-out clauses to mitigate the decline in the number of jobs of the unexpected and disappointing results of these derogations.

Finally, it must be noted that in a global context where higher transaction costs, increased inequalities and the risk of automation for individual jobs depict the prospective scenario, the effectiveness of collective bargaining "requires adapting it to the changing challenges and finding the right balance between inclusiveness and flexibility" (OECD, 2017a, p.165). However, if inclusiveness can be achieved through centralized or sectoral agreements and high bargaining coverage, substantial flexibility gained in individual firms through opt-out practices does not always drive firms towards a 'high road' in terms of innovation and training but rather may steer them towards worsening labour standards and lower productivity, as the Italian case suggests.

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TABLES

Table 1: Descriptive statistics by year (whole sample)

	2010		2014		Pooled sample	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Outcome variables						
Fixed-term contracts	12.73	18.41	8.54	14.62	11.09	17.15
Hires	13.35	21.39	9.41	16.71	11.81	19.78
Separations	13.51	21.13	8.95	16.11	11.73	19.45
Net job turnover	-0.03	13.84	0.46	12.87	0.16	13.47
ln (Sales per capita)*	11.70	1.28	11.82	1.27	11.74	1.27
Management characteristics						
Tertiary ed.	29.29		35.55		31.74	
Upper secondary ed.	51.60		47.01		49.81	
Lower secondary and primary ed.	19.11		17.44		18.46	
Family firms	82.09		75.44		79.50	
External management	5.14		9.02		6.66	
Workforce characteristics						
Tertiary ed.	9.17	16.61	11.08	17.72	9.91	17.08
Upper secondary ed.	41.42	26.71	45.02	26.47	42.83	26.67
Lower secondary and primary ed.	49.42	31.16	43.90	30.34	47.26	30.96
Trained	25.52	35.38	40.96	40.74	31.56	38.31
Aged<35	32.61	21.41	24.49	19.99	29.44	21.24
Executives	4.06	7.58	4.16	8.17	4.10	7.81
White collar	33.58	28.11	35.84	28.00	34.47	28.09
Blue collar	62.36	30.87	59.99	30.59	61.43	30.78
Women	33.46	26.02	33.37	26.36	33.43	26.15
Firm characteristics						
Unions	30.92		38.95		34.06	
Employers' association	68.58		70.99		69.53	
Export	38.76		46.38		41.74	
Innovation	63.20		56.65		60.64	
Firm age	26.05	18.63	29.84	20.89	28.15	20.71
ln (Employees)	3.48	0.78	4.33	1.11	3.44	0.75
Northwest	33.61		41.86		36.84	
Northeast	30.83		33.67		31.94	
Centre	18.28		13.79		16.52	
South	17.29		10.68		14.70	
Obs.	2,750		2,427		5,177	

Source: RIL-INAPP 2010 and 2014. *Note:* sampling weights applied. All values are percentages with the exception of *ln (Sales per capita)*, *firm age* and *ln (Employees)*. Standard deviation is not reported for binary variables. * Statistics on *ln (Sales per capita)* are based on 4,869 observations in the pooled sample. Economic activities (sectors) not reported due to space limitations.

Table 2. Descriptive statistics by year (OPTC and NO-OPTC firms)

	2010					2014				
	OPTC =0		OPTC =1		Diff	OPTC =0		OPTC =1		Diff
	Mean	Std Dev	Mean	Std Dev	OPTC-NO-OPTC	Mean*	Std Dev	Mean*	Std Dev	OPTC-NO-OPTC
Outcome variables										
Fixed-term contracts	12.83	18.52	9.81	14.76	-3.02*	8.5	14.66	9.36	13.61	0.86
Hires	13.48	21.49	9.76	17.98	-3.72**	9.34	16.73	11.21	16.1	1.87
Separations	13.57	21.25	11.85	17.33	-1.72	8.88	16.11	10.61	15.91	1.73
Net job turnover	0.04	14.01	-2.09	7.09	-2.13**	0.46	12.91	0.57	11.99	0.11
ln (Sales per capita)	11.70	1.27	11.75	1.4	0.05	11.8	1.25	12.14	1.55	0.34
Management characteristics										
Tertiary ed.	28.28		57.39		29.11***	34.35		65.44		31.09***
Upper secondary ed.	52.27		33.08		-19.19***	47.8		27.36		-20.44***
Lower secondary and primary ed.	19.45		9.53		-9.92**	17.85		7.21		-10.64***
Family firms	83.35		47.07		-36.28***	76.63		45.54		-31.09***
External management	4.81		14.49		9.68***	8.62		18.91		10.29*
Workforce characteristics										
Tertiary ed.	8.87	16.4	17.32	20.02	8.45***	10.8	17.5	18.14	21.34	7.34***
Upper secondary ed.	41.41	26.88	41.48	21.3	0.07	44.94	26.57	46.92	23.88	1.98
Lower secondary and primary ed.	49.71	31.18	41.19	29.44	-8.52**	44.26	30.37	34.94	28.21	-9.32**
Trained	25.25	35.29	32.98	37.03	7.73*	40.54	40.63	51.51	41.96	10.97*
Aged<35	32.78	21.54	27.87	16.82	-4.91**	24.73	20.16	18.67	13.72	-6.06***
Executives	3.92	7.42	7.96	10.4	4.04***	4.05	8.05	6.95	10.38	2.9**
White collar	33.3	28.04	41.47	28.91	8.17**	35.37	27.68	47.51	33.05	12.14*
Blue collar	62.78	30.69	50.57	33.46	-12.21***	60.57	30.25	45.53	35.19	-15.04**
Women	33.34	26.07	37.01	24.42	3.67	33.35	26.44	33.97	24.35	0.62
Firm characteristics										
Unions	29.26		77.09		47.83***	36.82		91.8		54.98***
Employers' association	67.85		89.02		21.17***	70.07		93.87		23.8***
Export	38.24		53.41		15.17***	46.74		37.65		-9.09***
Innovation	62.7		77.2		14.5***	56.75		54.14		-2.61
Firms age	25.91	18.63	29.84	20.89	3.93*	28.15	20.71	34.29	18.6	6.14*
ln (Employees)	3.45	0.78	4.33	1.11	0.88	3.44	0.75	4.37	1.45	0.93
Northwest	33.75		29.86		-3.89	41.99		38.7		-3.29
Northeast	30.54		38.72		8.18	33.84		29.39		-4.45
Centre	18.23		19.52		1.29	13.78		14		0.22
South	17.48		11.9		-5.58	10.39		17.91		7.52
Observations	2,558		192			2,235		192		

Source: RIL-INAPP 2010 and 2014. *Note:* sampling weights applied. OPTC is the opting out clause. All values are percentages, with the exception of *ln (Sales per capita)*, *firms age* and *ln (Employees)*. Standard deviation is not reported for binary variables. * Statistics on *ln (Sales per capita)* are based on 4,869 observations in the pooled sample. Economic activities (sectors) not reported due to space limitations. Diff reports significance levels for the t-test of the difference between means: *** p<0.01, ** p<0.05, * p<0.1

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Table 3: Opting out clause, labour market outcomes and productivity (Pooled OLS)

	FT share	Hir.rate	Sep.rate	NJT	Ln (sales p.c.)
OPTC	0.028***	0.042***	0.030**	0.011	0.085
	[0.011]	[0.014]	[0.015]	[0.009]	[0.108]
Unions	-0.036***	-0.019***	-0.010	-0.009**	-0.098**
	[0.006]	[0.007]	[0.007]	[0.005]	[0.047]
Employers' membership	0.003	-0.007	0.005	-0.014***	0.066
	[0.006]	[0.007]	[0.007]	[0.005]	[0.045]
Year 2014	-0.007**	-0.016***	-0.019***	0.001	-0.032
	[0.003]	[0.004]	[0.005]	[0.004]	[0.035]
Ln (sales p.c.)	-0.007***	-0.004*	-0.006***	0.002	
	[0.002]	[0.002]	[0.002]	[0.001]	
Management characteristics	Yes	Yes	Yes	Yes	Yes
Workforce characteristics	Yes	Yes	Yes	Yes	Yes
Other firm characteristics	Yes	Yes	Yes	Yes	Yes
Constant	-0.055**	-0.024	0.024**	-0.044**	13.957***
	[0.020]	[0.047]	[0.010]	[0.021]	[0.326]
Observations	4869	4869	4869	4869	4869
R2	0.189	0.135	0.095	0.023	0.146

Source: RIL-INAPP 2010 and 2014. *Notes*: Hir.rate=hiring rate; Sep.rate=separation rate; NJT=net job turnover. Management characteristics include education of managers, family firms and external management dummies; Workforce characteristics include education, occupation, gender, age and training of workers; Other firm characteristics include export, innovation, firm age, firm size, region (NUTS1) and economic activity (sectors); see Tables 1,2 and A.1 for more details. Clustered robust standard errors in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4: Opting out clause, labour market outcomes and productivity (FE)

	FT share	Hir.rate	Sep.rate	NJT	Ln (sales per cap.)
OPTC	0.016*	0.027**	0.025*	0.003	0.064
	[0.009]	[0.013]	[0.014]	[0.011]	[0.120]
Unions	-0.016**	-0.009	0.004	-0.012	-0.157*
	[0.008]	[0.010]	[0.012]	[0.011]	[0.084]
Employers' membership	-0.011	-0.003	-0.005	0.002	0.063
	[0.008]	[0.010]	[0.010]	[0.009]	[0.077]
Year 2014	-0.010***	-0.016***	-0.018***	0.001	-0.004
	[0.003]	[0.005]	[0.005]	[0.005]	[0.038]
ln (sales per cap.)	-0.004**	0.001	0.001	0.000	
	[0.002]	[0.002]	[0.002]	[0.002]	
Management characteristics	Yes	Yes	Yes	Yes	Yes
Workforce characteristics	Yes	Yes	Yes	Yes	Yes
Other firm characteristics	Yes	Yes	Yes	Yes	Yes
Constant	-0.351***	-0.156	0.16	-0.294**	12.277***
	[0.107]	[0.166]	[0.168]	[0.131]	[0.891]
Observations	4869	4869	4869	4869	4869
R2	0.103	0.031	0.030	0.046	0.008

Source: RIL-INAPP 2010 and 2014. *Notes*: Hir.rate=hiring rate; Sep.rate=separation rate; NJT=net job turnover. Management characteristics include education of managers, family firms and external management dummies; Workforce characteristics include education, occupation, gender, age and training of workers; Other firm characteristics include export, innovation, firm age, firm size, region (NUTS1) and economic activity (sectors); see Tables 1,2 and A.1 for more details. Clustered robust standard errors in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: Opting out clause, labour market outcomes and productivity (Diff-in-Diff with propensity score matching)

	FT share	P>|t|	Hir.rate	P>|t|	Sep.rate	P>|t|	NJT	P>|t|	Ln (sal. per cap.)	P>|t|
Before										
Control	0.076		0.098		0.110		-0.010		11.980	
Treated	0.082		0.111		0.119		-0.008		11.999	
Diff (T-C)	0.006	0.260	0.013	0.050**	0.009	0.171	0.002	0.514	0.019	0.721
After										
Control	0.065		0.079		0.085		-0.005		12.001	
Treated	0.090		0.116		0.116		0.000		12.077	
Diff (T-C)	0.025	0.000***	0.037	0.000***	0.032	0.000***	0.005	0.178	0.075	0.192
Diff-in-Diff	**0.019**	**0.009***	**0.024**	**0.011****	**0.022**	**0.019****	**0.003**	**0.613**	**0.075**	**0.476**
Observations	4869		4869		4869		4869		4869	

Source: RIL-INAPP 2010 and 2014. *Notes*: Hir.rate=hiring rate; Sep.rate=separation rate; NJT=net job turnover; Control=OPTC=0; Treated=OPTC=1. Before=2010; After=2014. As specified in equation (2) all management, workforce and firm characteristics have been included in the model; see Tables 1,2 and A.1 for more details about these covariates. P>|t| = *p_values*; *** p<0.01, ** p<0.05, * p<0.1.

APPENDIX

Table A 1 Firm-level variables: definitions

Outcome variables	
Fixed-term contracts	Share of temporary workers on total employees (t.e.)
Hires	Share of newly hired employees on t.e.
Separations	Share of lay-offs, retirements and voluntary separations on t.e.
Net job turnover	Hires minus separations on t.e.
ln (Sales per capita)	(Log of) total firm sales per employee.
Key variable	
Opting out clause (OPTC)	Dummy variable that equals to 1 if the firm has signed an opt out clause in derogation of the law and of the national collective contracts (CCNL), as introduced by Article 8 of Decree Law 148/2011, 0 otherwise
Management characteristics	
Tertiary ed.	Dummy variable that equals 1 if the employer/manager who runs the firm has a tertiary level of education, 0 otherwise
Upper secondary ed.	Dummy variable that equals 1 if the employer/manager who runs the firm has an upper secondary level of education, 0 otherwise
Lower sec. and prim. ed.	Dummy variable that equals 1 if the employer/manager who runs the firm has a lower secondary or primary level of education, 0 otherwise
Family firms	Dummy variable that equals 1 if the ownership of the firm is held by a family, 0 otherwise
External management	Dummy variables equal to 1 if managers who run the firms are recruited outside family ownership
Workforce characteristics	
Tertiary ed.	Share of employees with a tertiary education
Upper secondary ed.	Share of employees with upper secondary education
Lower sec. and prim. ed.	Share of employees with lower secondary and primary education
Aged<35	Share of employees less than 35 years old
Trained	Share of trained employees
Women	Share of female workers on t.e.
Professional composition	Share of executives, share of white-collar workers and share of blue-collar workers
Firms characteristics	
Unions	Dummy variable that equals 1 if trade unions are found at workplace, 0 otherwise
Employers' association	Dummy variable that equals 1 if firms belong to an employer's association (i.e., Confindustria), 0 otherwise
Innovation	Dummy variable that equals 1 if the firm has invested in product or process innovation three years before the survey, 0 otherwise
Foreign markets	Dummy variable that equals 1 if the firm sells its products or services on foreign markets, 0 otherwise
Firm age	Age of the firm in years
ln (Employees)	Total number of employees (taken in log) as proxy of firm size
Regions	4 dummy variables for northwest, northeast, centre, south
Sectors (Economic activity)	9 dummy variables for aggregations of Nace_Rev.2 2_digit sectors: 1) Mining & Quarrying and public utilities (Electricity, Gas, Water Distribution); 2) Light Manufacturing (Food, Beverages, Tobacco, Textile, Garments and Leather Products; Wood and Paper, Furniture; Other Light Manufacturing); 3) Heavy Manufacturing (Chemistry, Pharmaceutical Products, Plastic and Rubber, Coke and Refined Petroleum, Non-metallic Products, Metallurgy); 4) Computer, Machinery and Electrical Equipment; 5) Construction; 6) Retail and Wholesale Trade, Tourism, Hotels and Restaurants; 7) Transportation and Communication; 8) Finance, Intermediation and Other Business Services; 9) Healthcare, Educational and Social Services.

Source: RIL-INAPP 2010 and 2014

Table A.2 The Italian two-tier bargaining system

	2010			2014		
	OPTC=0	OPTC=1	*Diff*=OPTC-NO-OPTC	OPTC=0	OPTC=1	*Diff*=OPTC-NO-OPTC
I level bargaining	97	100	3.0***	93.4	98.3	4.9***
Trade union (RSU/RSA)	29.3	77.1	47.8***	36.8	91.8	55***
II level bargaIning	13.7	71.5	57.8***	14.9	100	85.1***
II level bargaining: firm level	10.8	65.2	54.4***	13.6	94.5	80.9***
II level bargaining: territorial level	3.1	9.4	6.3**	1.5	8.8	7.3**
Observations	2,558	192		2,235	192	

Source: panel component RIL 2010-2014. Sampling weights applied. All values report percentages of firms with a given characteristics out of the respective number of total observations. *Diff* reports significance levels for t-test of difference between means: *** p<0.01, ** p<0.05, * p<0.1

Table A.3 Baseline balance test for outcomes and covariates used in the Diff-in-Diff with propensity score matching

Variables	Control (Mean)	Treated (Mean)	Diff.	t	Pr(T>t)
Outcome variables					
Fixed term contracts	7.60	8.20	0.60	1.18	0.239
Hires	9.80	11.10	1.30	1.9	0.057*
Separations	11.00	11.90	0.90	1.35	0.176
Net job turnover	-1.00	-0.80	0.20	0.72	0.473
ln (Sales per capita)	11.96	11.99	0.04	0.76	0.449
Management characteristics					
Tertiary ed.	64.30	64.90	0.70	0.36	0.720
Upper secondary ed.	29.00	28.30	-0.80	0.44	0.660
Family firms	36.90	35.60	-1.30	0.69	0.490
External management	25.20	26.70	1.50	0.86	0.389
Workforce characteristics					
Tertiary ed.	16.70	17.10	0.40	0.61	0.542
Upper secondary ed.	42.50	43.10	0.60	0.7	0.486
Trained	41.60	42.90	1.30	0.88	0.379
Aged<35	25.90	25.40	-0.50	0.73	0.465
White collar	40.00	40.20	0.20	0.24	0.813
Blue collar	50.80	50.00	-0.80	0.64	0.524
Women	32.10	33.20	1.10	1.22	0.224
Firm characteristics					
Unions	82.40	87.40	5.00	3.61	0.0003*
Employers' association	89.00	89.50	0.50	0.41	0.682
Export	49.90	50.80	0.90	0.48	0.635
Second-level bargaining					
Innovation	81.70	84.30	2.60	1.79	0.074*
Firm age	30.94	31.67	0.72	0.78	0.438
ln (Employees)	4.96	5.03	0.08	1.48	0.139
Northwest	36.70	35.60	-1.10	0.59	0.557
Northeast	36.50	38.70	2.30	1.2	0.232
Centre	16.40	16.80	0.40	0.25	0.804
Light manufacturing	11.60	13.60	2.00	1.54	0.123
Heavy manufacturing	12.70	12.60	-0.10	0.09	0.929
Machinery, computer, electrical equipment	13.80	14.10	0.40	0.27	0.789
Construction	4.30	2.10	-2.20	3.2	0.0014*
Trade, hotels and restaurants	7.90	6.80	-1.10	1.12	0.262
Transportation and communications	14.30	13.10	-1.30	0.94	0.349
Finance, Intermediation and other business services	17.10	18.80	1.70	1.15	0.250
Education, health, private and social services	7.50	7.90	0.30	0.29	0.768

Source: RIL-INAPP 2010 and 2014. *Note:* Values of outcomes and covariates used in the regressions of Table 4 are expressed in percentages with exception of *ln (Sales per capita)*, *firms age* and *ln (Employees)*. Omitted categorical variables are lower secondary and primary education for both managers and employees, south, and aggregated economic activity, including mining, quarrying and utilities.

Acknowledgements

Notes

[1] From a legal point of view, the different forms of company-level deviations mentioned above maintain a different meaning. In any case, for simplicity, we use the terms opening clauses, opting out clauses and other types of deviation clauses interchangeably because we are interested mainly in all those clauses allowing *derogations in pejus* from the minimum standards established by the industry-wide collective agreements.

[2] This value is a weighted average of the figures for the II level bargaining reported in Table A.2.

[3] Total separations include layoffs, retirements and voluntary separations. The shares of hiring and separations are calculated as number of individuals that join or leave the firm on total dependent employees at firm level. All forms of so-called 'para-subordinate' (or 'semi-subordinate') work, which has characteristics halfway between those of dependent employment and self-employment, do not enter the denominator of job separation and job creation rates.

[4] Note that before 2011, it was not possible to adopt opting out clauses, because the Law 148 was introduced in 2011.

[5] It is worth noting that for outcomes reported in *i)-iv), ln sales per capita* enters the set of control variables.

[6] For a better readability of Tables 3 and 4, we display few covariates of interest, in addition to the key explanatory variable OPTC. The results for all control variables used in equation 1 are available upon request.