Labor market reform and rent-sharing:

a quasi-experiment experience

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Abstract

We analyze the impact on wages of the adoption of a rent-sharing remuneration scheme aiming at making labor institutions more flexible. We are working with a quasi-experimental setting referring to a sample of Italian companies before and after the introduction of the *Treu Reform* (1997). Our estimations confirm that this reform not only increased insider workers' wages via rent-sharing, but also fueled a $\sigma-$convergence process of the rent-sharing elasticity across the sectors at a different rate. Finally, we deliver a reasoned discussion of the consequences at large of the implementation of this reform in the Italian job market.

1. Introduction

The practice of collective negotiation has been implemented to guarantee an equal treatment among all workers and limiting wage discrimination across the sectors. Its major drawback is the creation of a system that leaves little room for the application of incentive mechanisms in the remuneration schemes. Nowadays, high levels of unemployment rates (above all in Southern European countries) again open the debates on the importance to provide more flexible labor contracting schemes. One of the major obstacles in implementing these new contractual forms is the potential cliff that could arise inside the worker group (Bentolilla et al., 2013). This paper aims at proposing a new reading of the empirical evidence and claiming that more flexible contractual forms do not disperse the type of treatment across workers but rather it impulses a two-pick convergence process. We propose a quasi-experiment analysis using a unique employer–employee panel database for Veneto from 1996 to 1999. Veneto is a highly industrialized Italian region that ranks among the most developed and densely populated regions in Europe. As in any Italian region, the level of centralization of the wage bargaining system is extremely high and the wage setting is characterized by a "two-level" bargaining system (a first national level where minimum wages are set in all occupations/sectors; a second level where additional wage premia are set at individual or company level). In the period covered by this study, the Veneto labor market recorded job creation, jointly with high labor mobility and worker turnover comparable to the Anglo-Saxon countries. Therefore, the Veneto labor market represents a valuable experience to analyze and draw conclusions for the current debate on the pros and cons of labor reforms introducing flexibility in remuneration schemes.

This study refers to a precise event: the labor reform that came into force in Italy in June 1997 (Law 196/1997; known as *Treu Reform*). This law was one of the most

comprehensive initiatives to make the Italian labor market more flexible and counted on the agreement of all the social partners. It introduced temporary contracts (creating Temporary Work Agencies[1]), extended fixed term contracts as the figure of apprenticeship,[2] provided incentives for part-time work, and allowed for a certain degree of flexibility in the contractual weekly-working hours and remuneration. The outcome of this reform was an asymmetric employment protection legislations characterized by an abnormal development of "atypical" contracts to control for the persistent rigidities of conventional employment contracts. Unions were concerned with the protection of *insider* workers (full time permanent workers): the reform seemed creating greater opportunities for new entrants and other *outsiders*.[3] However, evidence suggests that the probability of obtaining a tenured contract (and, then, becoming insider) seems decreasing as long as the number of temporary contracts increases (Gagliarducci, 2005). Furthermore, apprenticeship contracts have been improperly used: in many cases, the training component has been neglected but enterprises still got funding.[4] Put differently, apprenticeship contracts have become just a form of temporary (atypical) employment allowing for an exception to tradition contractual forms just on the basis of age criteria (Tiraboschi, 2006). Insiders are still the type of workers that companies were really willing to invest in terms of specific human capital. Thus, insiders may capture a portion of the rent by means of the accrued bargaining power associated with the ad-hoc training process at firm level, and even the existence of firing or hiring costs. However, insiders may also have an interest in recruiting low-wage atypical workers when they could really favor the bettering of the firm profits and thus indirectly insiders' wages (Cahuc and Zylberberg, 2004). Under this perspective, insiders may take advantage of the creation of new flexible and atypical contractual forms when keeping entrants in a less favorable situation (namely not being able to qualify as insiders) and tilting the partition of the

firms' profits to their own advantage. Consequently, the reform is able to bring more rent-sharing in practice (on average). However, heterogeneity in rent-sharing can be observed depending on specific firm characteristics and/ or sector of activities. For instance, innovative firms may often need to invest more in forming human capital of employees and, therefore, labor contracts are expected to be characterized by high levels of rent-sharing. Also, differences in the contract-renegotiation rules, the degree of centralization of the bargaining system, the rate of job destruction/creation as well as the average duration of continuing jobs may lead in differences across sector in terms of wage treatment (Boeri, 2009 [5] and 2010).

Our aim is to provide an empirical exercise that emphasizes the way the Treu reform was producing a change in the wage treatment of insider employees but without entailing important dispersion effects in their payment schemes. In concrete, we are addressing two precise open questions. On the one hand, we are interested in analyzing the impact of rent-sharing on contractual wages of the insider workers before-after the reform. On the other hand, we track the joint dynamics of the wage changes associated with the rent-sharing implementation in the different sectors in order to detect whether any difference (at sector level) marks this evolution and, eventually, exacerbates discrimination in remuneration across insider workers. The former question is addressed by exploiting a IV empirical strategy, whereas the latter with the stochastic kernel technique (as introduced by Quah, 1997). In this framework, the dynamic evolution of the quasi-rent elasticity over time lets us achieve a novel conclusion: more flexibility yields the two-pick convergence in rent-sharing elasticity across sectors. Therefore, favoring rent-sharing in labor contracts yields positive effects in terms of wages and does not increment dispersion of treatment among insider workers.[6] Thus, this strategy could be useful to overcome the

limitations of the current rigidities of the European labor market that often entails the lack of proper workers' incentives.

The rest of the paper is organized as follows. Section 2 shortly reviews the literature on rent-sharing. Section 3 proposes a description of the data we select to run our estimations, while Section 4 introduces the empirical strategy and Section 5 discusses the results. Section 6 develops further insights about policy issues and, finally, Section 7 concludes.

2. *Brief literature overview on rent-sharing*

Empirical evidence and part of the literature have often argued that employees share some of the rents earned by their employers (eg. De Menil, 1971; Blanchflower et al., 1996). In a competitive labor market this should not happen; wages should be determined by labor market conditions only and no firm should have incentive to pay wages beyond the level set by the labor market. Nevertheless, the phenomenon of rent-sharing is empirical observed (see references below) and its intensity may vary between industries/sectors according to the level of centralization of the wage bargaining system and the existence of firm specific contracts. If employer and employees bargain on wages, wages at firm level are determined by workers' outside options, by the quasi-rent (firm profits evaluated at the opportunity cost of labor) and by the relative bargaining power of the parties involved (Hildreth and Oswald, 1997).

Literature began with focusing on the link between wages and productivity in countries characterized by a high degree of decentralization of the wage bargaining system providing important empirical evidence on rent-sharing (e.g. Blanchflower et al. 1996, for the U.S.; Christofides and Oswald, 1992, and Abowd and Lemieux, 1993, for Canada; Nickell and Wadhwani, 1990, and Hildreth and Oswald, 1997 for the U.K).

More recently, various papers have tested the existence of rent-sharing in countries characterized by intermediate-high degree of centralization of the wage bargaining system. Margolis and Salvanes (2001) investigate the case of France and Norway, identifying signals of relevant rent-sharing only in the case of Norway. Focusing on Sweden employer-employee data, Arai (2003) not only finds robust evidence of rent - sharing, but it also does not differ across worker categories. Guertzgen (2010) discusses how rent-sharing is affected by the different levels of bargaining in Germany. He shows that rent-sharing is higher where there is no union sector coverage and in presence of firm-specific contracts (in particular, blue-collar workers rent-sharing disappears under centralized contracts). In a country where the relative importance of industry and firm level agreements differ significantly across industries as Belgium is, Rusinek and Rycx (2008) document the existence of rent-sharing in decentralized industries, while in centralized industries rent-sharing is observed only for workers covered by a firm agreement. Martins (2009) exploits Portuguese data and finds evidence of a significant and substantial amount of rent-sharing in worker contract.

Other studies have already investigated the existence of rent-sharing in Italy. Using 1983-98 data of the Italian basic metal industry, Pistoresi and Strozzi (2001) assess that rent-sharing arises only at the centralized level of wage bargaining, while decentralized wage negotiations do not lead to any degree of rent-sharing. Referring to 1996-2003 Italian data, Matano and Naticchioni (2011), find a robust evidence of rent-sharing at firm level with estimates of the elasticity of wages with respect to profits per employee of about 6%. They also determine that the impact of rent-sharing is not homogeneous across several dimensions (gender, occupation, sector and area). Furthermore, Matano and Naticchioni

(2013) identify the existence of a different degree of rent-sharing between men and women that increased along with the wage distribution entailing a glass ceiling effect. Finally Card, Devicienti and Maida (2014) investigate the degree of rent-sharing and test the hold up hypothesis in the region of Veneto (Italy) for the period 1995-2001. Their findings show that there is evidence of a substantial degree of rent-sharing in Veneto, with an elasticity of wages with respect to profits approximately 3-5% and varying according to the sector.

3. *Data description*

Our analysis is run by exploiting the 1996-1999 Veneto Worker Histories (VWH) dataset. It is a longitudinal linked employer-employee dataset developed at the Department of Economics of the University of Venice Ca' Foscari and based on administrative records of the Italian Social Security Institute. This longitudinal dataset covers the universe of worker histories in Veneto in the private sector for more than twenty years, up to 2001. It includes register-based information that allow to build a history of the working life of each employee who has been hired for at least one day by an establishment based in Veneto, regardless of the worker's place of residence. On the employee side the VWH includes total earnings during the calendar year for each job, the number of days worked during the year, the worker's gender, age, region (or country) of birth, occupation and seniority with the firm. On the employer side the VWH includes the type of sector, the dates of opening and closure of the firm (if applicable), as well as the firm's location.

Business-level balance sheet data were obtained merging the VWH dataset with the AIDA database from 1996 until 1999. AIDA is a database provided by Bureau Van Dijk that contains comprehensive fiscal information on Italian companies such as value added, profits, sales, production and costs of production. We use the tax code identifiers to match

firm-year observations. Even if the matching is good, our final sample shrinks because AIDA does not include all universe of Veneto firms while VWH does.[7] We keep in the final sample only full-time workers aged between 15 and 64 employed in businesses with at least 10 belonging to managers, blue and white collars with at least two observations in the panel (namely, each individual appears at least for two years).[8] We end up with an employer-employee panel database formed by 201,279 workers for 461,659 observations for the period 1996-1999. Table 1 shows the descriptive statistics of the variables of the analysis. On average, there is 65% blue collars, and 32% have tenures longer than 9 years. Their mean daily (real) wage was 59 Euros.

Our main dependent variable is the level of wages (that we consider as the real daily wage for a full time employee) and our principal regressors are the real quasi-rent per worker and its interaction to a dummy to identify the period after the 1997 Treu reform. The rent-sharing is the most comprehensive indicator we can assume to embed the type of contractual flexibility introduced by the reform. As in Matano and Natacchioni (2013), the quasi-rent is the revenue per-worker minus the alternative wage that we proxy with the average industrial wage (Van Reenen, 1996).[9] To control for national level bargaining, we include in our estimation the minimum wage corresponding to the worker's specific occupation/sector.

[Table 1 about here]

4. Empirical strategy

In order to investigate our research questions, our empirical strategy is twofold: first, we test the existence of a structural break after the 1997 reform Treu; second, we test the existence of a convergence process of the elasticity between rent-sharing and wages across the sectors.

The starting point of our analysis is a before-after estimator of the elasticity of wages with respect to quasi-rents per employees. Our baseline specification is the following:

$$log(w_{ijt}) = \alpha + \beta\ log(qr_{jt}) + \beta_{treu}\ log(qr_{jt})\ D_{1997} + \gamma\ X_{ijt} + \varepsilon_{ijt} \qquad (1)$$

where w_{ijt} is the average daily wage earned by employee i in business j and year t, X_{ijt} is a vector of observed individual and job attributes (gender, age, age squared, tenure, occupation, log minimum wage, log business size, sector, area and year), ε_{ijt} is the error term, and $log(qr_{jt})$ is log real quasi-rent per employee, which is also interacted to D_{1997} (a dummy signalling the period after 1997) to test if the Treu reform did have an impact on wages, namely if $\beta_{treu} \neq 0$. Our empirical strategy is built on estimating equation (1) according to different estimation techniques in order to check the robustness of the results. Our benchmark is ordinary least squared (OLS) estimations with robust error correction. We then move to fixed effect (FE) estimates to control for individual and business unobserved heterogeneity. Previous literature (Van Reenen, 1996; Card et al., 2014; Mataro and Naticchioni, 2013) shows that FE may lead to a significant underestimation of the elasticity of wages with respect to quasi-rents if wages and profits are simultaneously determined. Therefore, we address the endogeneity problem using an instrumental variables (IV) approach to obtain unbiased estimates. We introduce the following instruments. First, we follow the idea suggested by Card et al. (2014) by using the lagged value added per worker in other Italian regions,[10] also interacted to D_{1997}. The main idea below these instruments is that national sector demand shocks affect company level profitability but have no direct effect on local labor condition. Second, we propose another instrument that is the ratio between the number of employees in a firm over the total number of individuals employed in the 4-digits sector in Veneto,[11] also interacted to D_{1997}. The relative weight of a firm in a sector is a good proxy of its economic relevance

in a market and, therefore, of its ability to act as a leader on the production side which yields the possibility to fix market prices in a way to maximize its own profits.

In order to assess the dynamics of the wage changes (by sector) with respect to the implementation of the rent-sharing contracts, we rely on the stochastic kernel method of analysis as introduced by Quah (1997). The stochastic kernel can be considered as a conditional probability density and it is mapping how a probability density evolves over time. This analytical method involves a generalization of Markov transition matrices in continuous space to characterize a variable's long-term distribution. The method entails determining the intra-distribution dynamics of a sample of observations by contrasting their behavior to the representative average of the sample over time. According to the criteria defined by Quah (1997), we plot the dynamics in a two-dimension graph and interpret the results as follows. The contour plot of the graph (in Figure 1) represents cuts parallel to the base of the joint kernel distribution (X Y plan) at equidistant heights. They are roughly mapping the individual position of each firm in the general kernel distribution by referring to its own position in the vertical axe (namely the pre-reform estimated elasticity) and the one in the horizontal axe (namely the post-reform estimated elasticity). The reading of the contour plot has to be referred to the position of the mass concentration (namely, the peaks) of observations in the plan. The peaks of the distribution—the most concentrated areas—represent mass probability. If the mass is orthogonal to the horizontal axis, then a convergence process (across observations) is present. In this way, it is possible to detect somewhat polarization effects in the changes of the variables of interest referring to a selected sample with respect two points in time (before-after the reform).[12] In this setting, we consider as our variables of interests the elasticity of rent-sharing (by sector) estimated according to the procedure described above. Once these estimations have been run, we study the law of motion (at sector level) of the variation of

the rent-sharing elasticity passing from before to after the reform according to the criteria defined by Quah (1997) and we plot them in the two-dimension graph to interpret the results.

5. *Results*

We discuss the results in two steps. First, we discuss the existence of a structural break after the Treu reform presenting the before-after estimates of the elasticity of wages with respect to quasi-rents per employees. Then, we analyze the importance of the convergence process of the elasticity between rent-sharing and wages across sectors.

5.1 Does a structural break exist?

Estimates of the elasticity of wages with respect to quasi-rents per employees are reported in Table 2. All the variables of interest are in logarithms and therefore we estimate elasticities. First, in all estimates our variables of interests (namely the real quasi rent – rQR- and its interaction- rQR*d-) turn out to be always statistical significant, with an (expected) positive sign but with different magnitudes. The positive and statistical significant coefficient associated with the interaction term confirms the existence of a structural break in 1997. OLS estimates fix an elasticity of wages with respect to quasi - rents per worker of 6.8% over the period 1996-1999 (Columns 1-2, Table 2). In particular, the elasticity is 6.3% before the reform, and it moves to 7.1% after the reform (Columns 3-4, Table 2). As expected, FE underestimates the estimated elasticity (see Columns 5-6, Table 2). Using an IV approach, we find that the elasticity of wages with respect to quasi -rent per employee is 8.5% before the reform and 9.5% after (see Columns 7-8, Table 2). These results confirm that workers' wages increase via the rent-sharing as in the literature

(Matano and Naticchioni, 2011 and 2013; Card et al., 2014). A more flexible labor market fuels the elasticity of wages with respect to the quasi-rent per employee.

[Table 2 about here]

5.2 The convergence process

Once we established that the positive and statistical significance of the relationship between real quasi-rent and wages, we turn to analyze to which extent the reinforcement of the rent-sharing option in wage setting fueled discrimination among workers. This question is the most relevant for the Italian labor institutions, where wage determination has already an important discretional component in the firm-specific wage premia. The implementation of a rent-sharing contract type introduce a further element to nurture the firm-level bargaining process, amplify the heterogeneity among workers and *de-facto* create discrimination of treatment for workers having the same qualification, but working in the same sector but in different firms. In order to track the dynamics of the variation of the rent-sharing, we estimate, using the IV approach above discussed, the elasticity of the real-quasi rent (versus wages) for our sample of companies when aggregated into 3-digit sectors [13] before (in 1996) and after (in 1999) the reform. The outcomes of these estimations serve for a stochastic kernel estimation. Figure 1 presents the two-dimension graph picturing the rent elasticity estimated values (for each of the 43 sectors with available data) before the reform (y-axis) and rent-elasticity estimated values after the reform (x-axes).

[Figure 1 about here]

Following the criteria of interpretation as discussed in Quah (1997), the picks of the distribution (namely the most concentrated areas) represent the mass probability. They are orthogonal to the horizontal axis, depicting the existence of a two-peak convergence process in elasticity across sectors. The estimations unveil that there is a major convergence point around low elasticity values (around 0.02), and another (minor) point around larger elasticity values where the convergence dynamics (namely the orthogonality) is not so strong as the first one. Looking at the composition of the groups of sectors converging to the different level, we appreciate interesting patterns. We identify that traditional international competitive sectors usually facing fierce competition whose production has not a high technological content (as textile or furniture sectors) experience relative low elasticity rates. Instead traditional not international competitive sectors (like services), sectors with low degree of competition because of the specificity of the products (for instance, craft made metal sector) or sectors whose production display an important technological dimension (as chemical, for instance) converge versus higher level of eleasticity, as one should expect from the discussion of in Section 1. Therefore, the main conclusion of our analysis is that on the basis of the Italian experience, more flexible market institutions seem to be efficient in reducing the dispersion in worker-rent-sharing across sectors at a different rate and becoming more equitable in the spirit of Quah (1993).

6. Policy discussion

The Treu reform came into force in a quite particular moment for the Italian economy. On the one side, there was the progressive evolution towards a bi-polar model of political competition. On the other side the external forces bringing to the accomplishment of the Maastricht criteria and aiming at a deeper economic integration in the European Union

generated a considerable pressure for a reform making Italian labor market more flexible (OECD, 2009). The external constraint provided by the accomplishment of the Maastricht criteria, prevented the Italian government from relying on the canonical competitive devaluation practice to make firms gain competitiveness in the international markets. From 1993, the two-wage bargaining system allowed to gain productivity (and, then, competitiveness) through the implementation of the rent-sharing practice at firm level and gave incentives to workers to be more productive and favoring a sharing profit scheme between employers and employees.

In a situation in which a country is experiencing a deeper integration process, the presence of a unionized labor market exacerbates the difference between more-productive and less-productive firms and, as a consequence, enlarges the cliffs between the correspondent employees. More productive firms are usually identified with firms that are very active in innovation processes and exporters. Being more productive, these firms pay wage premia and this translates into a different rent-sharing results for employers in the two categories of firms (Bagger et al., 2011).[14] However, the Treu reform limited this counter effect. It succeeded in reducing the degree of unionization of the market (OECD, 2009) and, at the same time, favored a profitable risk-sharing effect that translated into a progressive two-peak convergence (of treatments of permanent employees) across sectors.[15] This type of convergence has to be seen as a progressive reduction of the dispersion of rent-sharing whose main differences seems pegging to the innovation vs non innovation dimension of the sectors of activities they belong to.

The Treu reform produced advances in the equality of treatment in job remunerations, but at the same time, it deepened a structural gap in the composition of the Italian labor market.

Labor unions and other social parties admitted the reform after a long negotiation process. The main contributions were the creation of Temporary Work Agencies and the attention addressed to new forms of recruiting for young people including apprentices. These new contractual forms represent an important innovation for a relatively sticky labor market. However, the lack of fully assimilation of these two categories of labor contracts put in evidence a few structural problems that the Treu reform was not taking into consideration. First, most of the apprenticeship contracts often had no chance to get tenured. Outsiders knew it but they were basically forced to accept this deal since no truly outside option was possible or available (OECD, 2009). Two types of evidence endorse this outcome. First, the phase of the business cycle was not the most favorable to consolidate new contractual form because Italian economy was in a stagnant period. The convergence path to the EURO accession (completed in 1998) and the consequent limitation in fiscal and monetary policies (above all preventing the adoption of the competitive devaluation practice) generated a period in which the Italian economy could not grow at a sustained rate to create employment in a structural form. Second, the social parties allowed for the introduction of these flexible contractual forms only once an agreement about the consolidation of the employment protection for permanent employees had been achieved.[16] Unfortunately, this rigidity reinforced the dualism of the Italian labor market characterized by an asymmetric labor protection legislation between insiders and outsiders. Third, the strict regulation of the labor market limits the consolidation of right incentives for fostering the educational training of labor force as an effective strategy to get tenured in labor positions, as well as labor productivity associated with the workers

skills. As previously discussed, this could have been another important channel for allowing the spreading of rent-sharing practice in wage determination. It could have represented an extra fuel for reducing dispersion in wage elasticity and, maybe, favoring a more egalitarian absolute convergence process rather than a two-peak one.

The importance to implement the rent-sharing practice and its strong linkages with the organization of the production at firm level brings to a further discussion. The Treu reform represents a good experience to discuss more extensively this issue for Italy.

As it has been recognized by Oswald (1996), whenever we are referring to an imperfect competitive market (as the Italian one), the rent-sharing problem is an issue and need to be addressed in order to evaluate the potential effects of a reform. As it has been documented for other country studies (Bagger et al, 2011 or Oswald 1996), rent-sharing could be an effective device to amend the structural problem on the productivity side (and as a consequence, competitiveness) that the Italian labor market have been consolidated in time. According to our results, the Treu reform clearly brought some advantages in terms of rent-sharing and reduced the wage dispersion among insider workers in different sectors, but the implementation of this reform was *de facto* limited by the creation of a dual labor market.

Based on the experiences of other European countries (OECD, 2009), more incisive results could have been obtained by privileging rent-sharing schemes in more flexible labor markets with less contractual distinctions between incumbent workers and new comers. Further, our results assess that an important dichotomy that the reform is not able to amend: it is the persistence of the difference in wage treatment between innovative and non-innovative sectors being the last ones more resilient to implement the rent-sharing

practice. This is a signal on the importance to intervene not only on the structure of labor market but also on the organization of the production if a reformer targets to get consistent results when implementing a labor reform via rent-sharing. Rent-sharing reinforces the connection between wage and profits: more profits can be achieved when firms gain more competitiveness by being more productive. A typical way to increase productivity is to implement training and innovation programs that turn also to be two of the key features that make rent-sharing more effective. In this respect, a joint action involving the introduction of policies supporting labor reform, promoting educational training and innovation might represent a good combination to achieve persistent results in making labor market more flexible and reduce wage dispersion across workers.

7. Conclusions

The introduction of new institutions that allow for making working conditions more flexible in countries with a long collective tradition entails not only advantages in terms of labor incentives for workers but also favors convergence at a different rate in the rent-sharing process across insider workers belonging to different sectors. In this respect, reforms proposing alternative instruments that lead to the protection of the worker interests under a novel contractual framework are welcomed. Our results confirm the positive association between rent-sharing and wages for insider workers. Furthermore, in dynamic terms, the Treu reform also favored a two-peak convergence process in rent-sharing elasticities (with respect to wages) that practically entailed a less discriminatory wage dynamic for insider workers across sectors.

Our results are in line with the policy suggestions put forward by economic literature. Fostering the adoption of rent-sharing contract types is expected to generate positive returns for productivity and employment. These are two of the main important dimensions

European economies (above all in the Southern Europe) need to work on in order to keep their competitiveness in a more and more integrated international environment.

According to data availability, it could be interesting to extend this type of analysis to other countries and track their wage evolution over time in order to (i) detect the factors by which rent-sharing may trigger productivity and (ii) produce more exhaustive policy evaluations for implementing effective contractual schemes.

Endnotes

[1] These agencies are employment service providers for temporary staffing.

[2] An apprenticeship contract is a fixed term contract addressed to individual aged between 16 and 24. Its standard duration is usually between 18 months and 4 years, with some exception for the handcraft sector. This contract involves low wages for workers with respect to the market wages for similar skill-type positions, but employers are expected to get actively involved in the on-the-job training process of the apprentices.

3 Insider-outsider models usually assimilate insiders with employees and outsiders with the unemployed (Bentolilla et al., 2013). Workers employed under standard (full-time, open-ended) contracts are subject to high firing cost and are covered with collective bargaining agreements to protect wages. These workers are qualified as insiders. Instead, atypical or temporary workers cannot be assimilated to insiders since their concerns are often neglected by insiders and unions (then, they are labelled as outsiders).

[4] The work training contracts (CFL) have been also improperly used often neglecting the training component. CFLs were introduced in 1984 with law 863/84, and they were modified with law 56/87, which extended their applicability to all economic sectors, and with law 451/94, which raised from 29 to 32 the age limit for their applicability.

[5] Boeri, T., 2009. *Institutional Reforms in European Labor Market*. Unpublished manuscript. URL: http://eml.berkeley.edu/~cle/secnf/boeri.pdf.

[6] Two-pick convergence has to be considered as a process belonging to the category of *clubs of convergence*. It shares basic feature with σ−convergence in the sense that it has to be intended as a measure of the decrease in the rate of dispersion of an economic variable. Quah (1993) suggests that σ−convergence can be also interpreted as a dynamic by which the distribution of an economic magnitude is becoming more equitable.

[7] AIDA includes only firms with annual sales above 500.000 euro. Refer also to Card et al. (2014) for a discussion about the possibility of merging VWH and AIDA datasets.

[8] Data on profits are deflated using the value added deflator (base year, 2003). As in Mataro and Naticchioni (2013), we drop observations for which the difference in absolute value between the firm size reported in AIDA and the firm size reported in VWH is higher than 200, as well as extreme observations below (above)the 1st (99th) percentile of wages and profits per employee. As in Card et al. (2014) part-time workers and apprentices are not included in the sample. Also, employees in the agriculture sector are not included.

[9] The average industrial wage is computed by occupation and year.

10 Based on average revenues per worker for firms in the AIDA database in the same 4 digits sector (5 digits when possible)

11 This instrument varies across firms allowing to estimate the elasticity of wages with respect to quasi-rent per employee at 3-digits sector level and, therefore, to perform our dynamic analysis.

12 This exercise relies of the quantification of a hypothetical average behavior of each observation having as fixed points two estimated values. In this estimation procedure, the key issue is the definition of the law of motion. As is usual in the literature, here we follow the process described in Quah (1997).

13 Overall, we deal with 43 sectors. More details about the aggregation criteria are available upon request.

14 Bagger, J., B.J. Christensen, and D.T. Mortensen, 2011. *Wage and Productivity Dispersion. The Role of Rent Sharing, Labor Quality and Capital Intensity*, mimeo. URL: http://www.sole-jole.org/12257.pdf.

15 This result is in line with the evidence already discussed in Oswald (1996): profitable rent sharing effects appear to be larger in less unionized firms.

16 Moreover, the probability of obtaining a tenured contract decreases as long as the number of temporary contracts increased (Gagliarducci, 2005).

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List of Tables

Table 1. Descriptive statistics

Variable	mean
Log real daily wage	4.078
Log real minimum daily wage	3.250
Age	35.812
Tenure 0-1	0.133
Tenure 2-9	0.544
Tenure >9	0.323
Blue collar	0.654
White collar including managers	0.346
Log firm size	4.367
Log quasi-rent per employees	2.801
Number of groups	201279
Number of observations	461659

Real wages and real quasi-rent: base year, 2003

Table 2. Estimates

Dependent variable:	OLS (specification I)			OLS (specification II)			FE			FE+IV		
Log real daily wage	**Coef**		**Robust SE**	**Coef**		**Robust SE**	**Coef**		**S.E.**	**Coef**		**S.E.**
rQR	0.068	***	0.000	0.063	***	0.001	0.004	***	0.000	0.085	***	0.010
i=rQR*d				0.008	***	0.001	0.007	***	0.000	0.010	***	0.002
Log real minimum wage	0.032	***	0.003	0.032	***	0.003	0.007	***	0.001	0.010	***	0.001
Female	-0.196	***	0.001	-0.196	***	0.001						
Age	0.031	***	0.000	0.031	***	0.000	0.051	***	0.001	0.046	***	0.002
Age-squared	0.000	***	0.000	0.000	***	0.000	0.000	***	0.000	0.000	***	0.000
Tenure is 2-9 years	0.063	***	0.001	0.063	***	0.001	0.021	***	0.001	0.022	***	0.001
Tenure is >9 years	0.110	***	0.001	0.110	***	0.001	0.020	***	0.001	0.021	***	0.001
White collar and manager	0.269	***	0.001	0.269	***	0.001	0.041	***	0.002	0.046	***	0.002
Log firm size	0.012	***	0.000	0.012	***	0.000	0.046	***	0.001	0.042	***	0.001
Sector dummies	yes		Yes	yes		yes						
Area dummies	yes		Yes	yes		yes						
Year dummies	yes		Yes	yes		yes	yes		yes	yes		Yes
Constant	2.917	***	0.010	2.951		0.012	2.510	***	0.014	2.440	***	0.052
R2-overall			0.470			0.470			0.140			0.209
First-stage F-statistic for value added per worker												108.30
First-stage F-statistics for relative weight of a firm												2561.18

Note: (*),(**), (***) significance at 1%, 5% and 10% respectively ; OLS robust standard errors; Fixed effects by employee and by business.

List of Figures

Figure 1: Stochastic kernel for rent-elasticity estimated values (pre and post reform)