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The Effects of Employment Protection on the Italian Labour Market

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Abstract

This paper uses the Italian Social Security employer-employee panel to study the effect of a reform that introduced a cost for unjust dismissals *only* for firms below 15 employees, while leaving firing costs unchanged for bigger firms. We find that the increase in dismissal costs decreased accessions and separations in small relative to big firms, the more so in sectors with higher employment volatility. Moreover, the reform reduced firms' entry rates while increasing the exit rate. We also find evidence that higher EPL flattened employment policies over the cycle

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1 Introduction

Despite clear-cut theoretical predictions (Bertola (1990) and Hopenhayn and Rogerson (1993)), empirical studies on the impact of labour market regulations have failed to find substantive evidence of a negative causal relation between employment protection restrictions and the reallocation of labour (see, e.g., Nickell and Layard, 1999). Difficulty in identifying the impact of these regulations on employment may be one reason. For instance, studies using bivariate or multivariate cross-country data (OECD 1999; Garibaldi, Konings and Pissarides (1996); Gómez-Salvador, Messina and Vallanti (2003)) may fail to correctly account for unobservable country characteristics potentially correlated with both labour regulation and labour market outcomes, thus leading to biased estimates.

Studies exploiting within-country variation in the enforcement of EPL, either over time or across firms, have the *potential* to overcome these problems.

Italy is one of the strictest countries in terms of employment protection legislation and is therefore a particularly interesting case to study. Previous work on Italy has exploited the within-country variation in the enforcement of EPL.¹ Boeri and Jimeno (2003) assesses the effect of EPL on lay-off probabilities. Borgarello, Garibaldi and Pacelli (2002), and Schivardi and Torrini (2004) evaluate the effects of EPL on the size distribution of Italian firms. These three papers identify the effect of EPL by exploiting the fact that, in Italy, firms below 15 employees are subject to much lower firing costs than firms above 15 employees.² This amounts to capture the effect of interest by comparing the performance of small and large firms. The underlying implicit identifying assumption is that controlling for *observable* characteristics is enough to wipe out any behavioral differences between small and large firms, and therefore the different stringency of EPL may be simply captured by the firm's position relative to the 15 employees threshold. However, *unobservable* characteristics may make small firms different from large ones and may make them behave differently. For instance, one may argue that, even though in the presence of adjustment costs all firms optimally do labour hoarding over the cycle, firms facing higher opportunity costs of capital (say, small firms facing more severe liquidity constraints) are less willing to do so. This, for instance, may already explain (at least part of) the finding of Boeri and Jimeno (2003) that in Italy the probability of a lay-off is larger in small firms than in large firms. Thus, unobservable characteristics may act as confounding

¹Section 2 reviews the evolution of the Italian EPL.

²Borgarello, Garibaldi and Pacelli (2002) also presents results exploiting the temporal variation in EPL, as we do. However, differently from us, they only focus on the effect of EPL on firms' size.

factors and cast doubts on the correct identification of the effects of EPL.³

In this paper, we present new evidence on the impact of employment protection legislation on the Italian labour market that does not suffer from the above shortcomings. We exploit the differential change in firing costs for unfair dismissals in large and small firms after 1990. In that year, in fact, Italy introduced a labour market reform which increased employment protection for workers employed under permanent contracts in firms with less than 15 employees relative to those in firms with more than 15 employees. This reform allows identifying the effect of firing costs by implementing a differences-in-differences approach, i.e. a comparison of the performance of firms of the *same* size, before and after the reform, using large firms as the control group.

Our empirical analysis uses administrative data from the Italian Social Security Institute (INPS). Our data set is an employer-employee panel reporting, among other information, the dates of appointment and separation of the worker, the date of incorporation and termination of the firm and the yearly average number of employees. Thus, we can examine how the 1990 Italian labour market reform affected (*i*) worker flows (i.e. the probability of a match and the probability of a separation), (*ii*) firms entry and exit rates, and (*iii*) the shape of firms employment policies over the cycle. Moreover, since we have sectoral information as well, we can assess the extent to which the 1990 reform affected the volatility of employment policies over the cycle at the sectoral level.

Our results are easy to summarize. Controlling for sectoral fixed effects, region and time effects, sector specific trends, a time-varying measure of sectoral productivity, and size-specific cyclical effects we find that both accession and separation probabilities went down after the reform for men and women in small firms relative to large firms. The drop is a sizeable one, since the point estimates imply a decrease of as much as 10%. We also find that the effect is more pronounced in sectors that were more volatile before the reform.⁴ Moreover, despite EPL being blamed as one of the major causes of unemployment among the young because it makes more difficult for them to get the first job, we find that young workers of age below 25 did not experience any reductions in accession probabilities in small firms relative to large firms. This is however consistent with the fact that, in small firms, the size of the firing costs depends on the wage rate, and is

³Other work exploiting within-country variation is Hunt (2000), Acemoglu and Angrist (2001), Autor, Donohue III and Schwab (2002), Angrist and Kugler, (2003), Autor (2003), Kugler, Jimeno, and Hernanz (2003). They tend to find that restrictions on employment-at-will have moderate effects. Micco and Pagés (2004), differently, use a cross-country approach and exploit differences across sectors to implement a differences-in-differences methodology.

⁴This is reassuring since it confirms that we are indeed capturing the effect of the reform, rather than the effect of some other contemporaneous shock or legislation change that should not have affected differently sectors with different volatilities.

therefore arguably lower for young workers with shorter tenure.⁵

Exploiting the information available on the employers, we also estimate the effect of EPL on firms entry and exit rates. Using a similar set of controls as above, we find that the entry rate went down in small firms relative to large firms, while the exit rate went up. Also in this case the effects appear to be stronger in sectors whose pre-reform employment volatility was larger. The fact that the reform induced higher exit rates, the more so in more volatile sectors, suggest that higher EPL, reducing the ability of the firms to adapt to the cycle, may force them out of the market. However, since according to the Italian law firms exiting the market do not have to pay firing costs, it may also be possible that some firms, possibly the smallest, may be induced to exit and re-enter under a different label in order to reduce their workforce and circumvent the legislation. Moreover, we estimate the effect of the reform on the employment growth rates at the firm level, finding that they were negatively affected. This implies that, as expected, the reform made small firms' employment policies flatter relative to large firms.

Finally, we aggregate our data and estimate the sectoral volatility of employment growth of small and large firms at the sectoral level. We find that, also at the sectoral level, the 1990 reform reduced the volatility of employment growth.

The rest of the paper is organized as follows. Section 2 describes how firing restrictions evolved in Italy. Section 3 explains the identification strategy used to evaluate the impact of EPL in Italy. Section 4 describes the Social Security data and presents estimates of the impact of increased strictness of employment protection in small firms in Italy after 1990 on employment turnover and firms' entry and exit rates.

2 Employment Protection Regulations in Italy

Italy, together with the other Southern European countries, is considered one of the strictest countries in terms of employment protection legislation (EPL). For example, a study by Lazear (1990) for the period 1956-84 and a study by Bertola (1990) for the late 1980's rank Italy as the strictest country in terms of EPL. A study by the OECD's Employment Outlook for the late 1980's, ranks Portugal as the strictest country followed by Italy, Spain, and Greece. A similar study by the OECD's Employment Outlook for the late 1990's, which includes Turkey, North America, and Transition Economies as well, continues to rank

⁵This implies that, in Italy, the overall effect of EPL on the accession probabilities of the young may still be rather large, because in firms above 15 employees firing costs are *independent* of the wage.

Portugal as the strictest, followed by Turkey, Greece, Italy and Spain. The study by Nicoletti et al. (2000), which does not include some of the countries in the OECD's Employment Outlook study, also ranks Italy third, after Portugal and the Netherlands, in terms of the strictness of regulations on permanent contracts.

Dismissals were first regulated in Italy in 1966 through Law No. 604, which established that, in case of unfair dismissal, employers had the choice to either hire back workers or pay severance, which depended on tenure and firm size. Severance pay for unfair dismissals ranged between 5 and 8 months for workers with less than two and a half years of tenure, between 5 and 12 months for those between two and a half and 20 years of tenure, and between 5 and 14 months for workers with more than 20 years of tenure in firms with more than 60 employees.⁶ Firms with less than 60 employees had to pay half the severance paid by firms with more than 60 employees, and firms with less than 35 workers were completely exempted.

In 1970, the *Statuto dei Lavoratori* (Law No. 300) established that all firms with more than 15 employees had to hire back workers and pay their foregone wages in case of unfair dismissals. Firms with less than 15 employees remained exempted.⁷ A number of recent studies show evidence of the binding effect of this law for firms at the 15 employee threshold. For example, the last annual report by the Italian Statistical Office, ISTAT, shows a larger fraction transiting to a smaller size category for firms around the 15 employee threshold than for firms at any other sizes. Similarly, Garibaldi, Pacelli and Borgarello (2003) find a higher probability of inaction and a higher probability of reducing firm size than of increasing it for firms at the 15 employee threshold.

Given the high costs of unfair dismissals for larger firms, in 1987 the Italian government liberalized the use of temporary contracts in an attempt to provide more flexibility to employers. Prior to 1987, temporary contracts could be used for specific projects, seasonal work, or for replacement of temporarily absent permanent workers. After 1987, temporary contracts could be used more widely subject to collective agreements specifying certain target groups. While the extended use of temporary contracts allowed for more flexibility in the labour market, these contracts could only be renewed up to two times and could only have a maximum length of 15 months. Consequently, even though temporary contracts were liberalized after this reform, the use of temporary contracts remained heavily

⁶By contrast, severance pay for fair dismissals is paid from workers' retained earnings, so they entail no cost to employers.

⁷Boeri and Jimeno (2003) present a theoretical explanation of why these exemptions may be in place to begin with. They argue that exempting small firms reduces the disemployment effect of EPL, because small firms subject to EPL have to pay much higher efficiency wages to discourage shirking than large firms.

regulated in Italy compared to other countries.⁸

Moreover, soon after the 1987 reform, Law No. 108 was introduced in 1990 further restricting dismissals for permanent contracts. In particular, this law introduced severance payments of between 2.5 and 6 months pay for unfair dismissals in firms with less than 15 employees. In contrast, firms with more than 15 employees still had to hire back workers and pay foregone wages in case of unfair dismissals. This means that the cost of unfair dismissals for firms with less than 15 employees increased relative to the cost for firms with more than 15 employees after 1990.⁹

In 1997, Italy moved again in the direction of trying to provide firms with a margin of flexibility by legalizing the use of temporary help agencies. However, as the 1987 reform, the legalization of temporary help agencies was limited in that it imposed restrictions on the maximum number of possible renewals of temporary help workers.¹⁰

While the 1990 reform increased the costs of unfair dismissals for permanent contracts in firms with less than 15 employees relative to firms with more than 15 employees, the 1987 and 1997 reforms introduced flexibility at the margin by deregulating the use of temporary contracts and temporary layoffs. Since our data is for the period of 1986 to 1995, in this paper we exploit the temporal change in dismissal costs generated by the 1990 reform for permanent workers, which applied differently for small and large firms.¹¹

⁸Note that, according to the OECD's Employment Outlook (1999), Italy ranked first in terms of strictness of the regulation of fixed-term contracts during the 1980's and it continued to rank first during the 1990's.

⁹In 1991, the Italian government introduced also other reforms. In one, it aimed at providing fiscal incentives by reducing payroll taxes (i.e., social security contributions) for firms with more than 15 employees. As shown in Kugler, Jimeno, and Hernanz (2003) while an increase in dismissal costs should reduce both hiring and dismissals, a reduction in payroll taxes should increase hiring but have no effect on dismissals. Consequently, this reform should have increased hiring but should not have affected dismissals. Another reform implemented in 1991 deals with collective dismissals taking place in firms with more than 15 employees. It introduces a special procedure in case at least 5 workers are dismissed (in a range of 110 days). In order to deal with this (potentially) confounding factor, we limit our sample to firms below 35 employees less subject to be hit by shocks forcing them to fire as much as 5 employees (or more). Finally, in 1992, the government also eliminated a wage indexation mechanism (*Scala Mobile*) which had been adopted in 1945 and which applied to firms of all sizes.

¹⁰OECD measures of the strictness of regulations on temporary help agencies ranked Italy first in the late 1980's, but ranked Italy 6th in the late 1990's after Turkey, Greece, Spain, Portugal and Belgium (Employment Outlook, 1999).

¹¹In our empirical analysis we also tried limiting the sample to the period from 1987 to 1995 to eliminate any possible effect of the liberalization of temporary contracts in 1987. In any case, though, we concentrate on permanent workers in our analysis.

3 Identification Strategy

The goal of this paper is to identify the impact of dismissal costs on permanent employment. In order to do so, we compare the change in the performance of firms with less than 15 employees before and after the 1990 reform to the change in the performance of firms with more than 15 employees. However, one may argue that firm size may be affected by the reform itself. In order to deal with this possibility, we define as *small* only firms that have *less* than 15 employees in *all* years before the reform and as *large* only firms that have *more* than 15 employees in *all* years before the reform. In other words, we eliminate from the sample the firms whose size crosses the 15 employees threshold before the reform. We do so in order to focus on the firms whose size is already at some "steady state" level. The reason is that the theory suggests that *in steady state* EPL should not affect the average employment *levels* but only *deviations* from the average.

The strategy to identify the impact of the change in dismissal costs is illustrated in Figures 1-4 and in tables 1-4. Figures 1 and 2 show accession and separation probabilities in firms with less than 15 employees and firms with more than 15 employees for the period 1986 to 1995. Figure 1 shows a sharper decline in accession probabilities in small firms than in large firms, starting from 1991, i.e. right after the 1990 reform. Figure 2, though less eyeballing, still shows a somewhat more pronounced decline in the separation probabilities in small relative to big firms starting in 1989. The figures in Table 1 confirm this interpretation. Figure 3 (and the corresponding figures in table 3) shows a more marked decrease of small firms entry after 1990 relative to large firms, while figure 4 shows that exit rates of both small and large firms went steadily up from 1989 to 1993.

Accessions and separations. To control for the possibility that reduced accessions and separations are the result of other shocks occurring during the post-reform period, we estimate a linear probability model using the panel of workers described in section 4. The baseline specification that controls for year effects, sectoral fixed-effects, and for observable worker and firm characteristics looks as follows:

$$E [m_{ijt} = 1 | X_{ijt}, D_j^S, Post_t] = \beta' X_{ijt} + \delta_0 Post_t + \delta_1 D_j^S + \delta_2 (D_j^S \times Post_t) \quad (1)$$

The dependent variable m_{ijt} is a dummy variable that takes the value of 1 if a match was created or destroyed, i.e., if there was either an accession or a separation, between worker i and firm j at time t ; the matrix X_{ijt} includes the fixed sectoral effects, the time effect, worker characteristics such as age, occupation and gender, and firm characteristics such as the geographical location and the

yearly average number of employees; $Post_t$ is a dummy that takes the value of 1 after 1990 and zero otherwise; D_j^S is a dummy that takes the value of 1 if the worker is employed in a small firm and 0 if the worker is employed in a big firm. The interaction term between the small firm dummy and the post-reform dummy is included to capture the effects of interest.¹²

Since the theory predicts that the introduction of EPL should have a stronger effect on more volatile sectors, we can check if we are indeed capturing the effect of the reform, by analyzing the employment volatility of the different sectors. If the more volatile sectors are the most affected then we may be confident that our identification strategy is indeed picking the effect of the increase in EPL. In order to do so, we assume that the "true" sectoral volatility of employment growth may be well approximated by the pre-reform volatility, and estimate the following model:

$$E [m_{ijt} = 1 \mid X_{ijt}, D_j^S, Post_t, V_k] = \beta' X_{ijt} + \delta_0 Post_t + \delta_1 D_j^S + \delta_2 (D_j^S \times Post_t) + \gamma_0 (V_k^S \times Post_t) + \gamma_1 (V_k^S \times D_j^S) + \gamma_2 (V_k^S \times D_j^S \times Post_t) \quad (2)$$

where V_k denotes the variance of employment growth in the pre-reform period of firms above and below 15 employees. The coefficient γ_2 is meant to capture the differential effect of EPL on sectors with different volatility.

While the inclusion of time effects allows controlling for the possibility that the change in turnover after the post-reform period was due to macro shocks, it is possible that the cycle affects small and large firms differently. If this were the case, then we should have observed both reduced accessions and increased separations during the post-reform period due to the strong recession of 1992 and 1993. Instead, Figures 1 and 2 above show reduced accessions and separations. Nonetheless, we also estimate the following alternative specification allowing for size-specific cyclical effects:

$$E [m_{ijt} = 1 \mid X_{ijt}, D_j^S, Post_t, E_t] = \beta' X_{ijt} + \phi_0 E_t + \phi_1 (D_j^S \times E_t) + \delta_0 Post_t + \delta_1 D_j^S + \delta_2 (D_j^S \times Post_t) \quad (3)$$

where E_t is an expansion variable which is either a dummy taking the value of 1 during the recession years of 1992 and 1993 or the growth rate of GDP. The size-specific cyclical effect is captured away by the interaction term between the small firm dummy D_j^S and the expansion variable E_t .

¹²Other specifications, where we control for time-varying sectoral productivity, sector specific time effects and workers fixed-effects, are discussed in section 4 along with the results.

Firms' entry and exit. In a similar way we estimate the effect of the EPL reform on firms' entry and exit rates. In order to do so, we exploit the employer-employee nature of our panel and focus on the longitudinal information on firm characteristics. We estimate a linear probability model whose baseline specification reads as follows:

$$E[\mu_{jt} = 1 \mid \xi_{jt}, D_j^S, Post_t] = \theta' \xi_{jt} + \rho_0 Post_t + \rho_1 D_j^S + \rho_2 (D_j^S \times Post_t) \quad (4)$$

The dependent variable μ_{jt} is a dummy variable that takes the value of 1 if firm j entered or exited the market at time t ; the matrix ξ_{jt} includes the fixed sectoral effects, a time effect, the geographical location of the firm and its yearly average number of employees; the variables $Post_t$ and D_j^S are, as described above, the post-reform dummy and the small firm dummy. Also in this case, we extend the above specification along several dimensions. We check whether EPL affects entry and exit differentially depending on the sectors' volatility (along the lines of equation (2)) and also control for size-specific cyclical effects (along the lines of equation (3)), and for time-varying sectoral productivity, sector specific time effects and firms fixed-effects.

4 Estimates of the Effects of EPL

4.1 Data Description

The data set is drawn from the Italian Social Security Administration (INPS) archives for the years 1986-1995. The original data set collects social security forms of a 1/90 random sample employees every year, with employees born on the 10th of March, June, September, and December of every year being sampled. The original archives only include information on private sector firms in the manufacturing and service sectors, so that it excludes all workers in the public sector and agriculture. We use a 10% random sample from this original data set.

The data set includes individual longitudinal records generated using social security numbers. However, since the INPS collects information on private sector employees for the purpose of computing retirement benefits, employees are only followed through their employment spells. The data, thus, stops following individuals who move into self-employment, the public sector, the agricultural sector, the underground economy, unemployment, and retirement. The data set also includes longitudinal records for firms employing the randomly selected workers in the sample using the firms' name, address, and social security and fiscal codes. While the data set includes a random sample of workers, the probability that a

firm is selected increases with size. When using the panel of firms, we account for this by weighting each observation by the probability that it appears in the sample given by average number of employees divided by 90.

The data set is, thus, an employer-employee panel with information on workers and firm characteristics. In particular, the data includes information on employees' age, gender, occupation, dates of accession and separation with each firm, and type of contract, and information on firms' location, sector of employment, number of employees, and firms' dates of incorporation and termination. The advantage of this administrative data for the purpose of studying the effects of EPL on worker transitions and firms entry and exit probabilities is that, contrary to survey data which measures transitions by matching quarterly data and using tenure information to identify job changes, it identifies exact dates of accessions and separations according to when social security contributions began and ended. Moreover, the exact dates of incorporation and termination of the firm, as an employer, in the INPS archives are also recorded.

Table 1 presents descriptive statistics on permanent workers by firm size, before and after the 1990 reform. The table shows lower accession rates for all age groups (young, middle-aged and old) after the reform both in small and large firms. However, the drop in accession rates after the reform seems to be larger in small than in large firms. Similarly, separation rates are lower for all age groups after the reform both in small and large firms, but the drop in separation rates was much more pronounced in small firms. These simple comparisons of means suggest that the increase in dismissal costs in small relative to big firms did have an impact on accessions and separations. Furthermore, the raw data seem to indicate that the most affected age group, both in terms of lower accessions and separation, is the middle-aged group.

Tables 2 and 3 present descriptive statistics for men and women separately by firm size, before and after the 1990 reform. As to men, the pattern is very similar to the general one just described: both accessions and separations go down after 1990 and more so in small firms. The *middle-aged* males are the ones that suffer the *largest* drop in accession, while *old* males suffer the *smallest* drop in separations. As to women, the raw data present a more varied picture. Accessions seem to fall more in small than in large firms *only* for middle-aged female workers, while separations decrease more in small firms than in large firms for *both* young and middle-aged female workers. This may suggest that the Italian 1990 EPL reform might have had no (or, at best, only little) effect on old female workers, while apparently having some bearing on all males age groups.

Finally, table 4 presents descriptive statistics on firms' characteristics. In particular, it shows that entry rates go down after the reform, but the drop is

more pronounced for small firms, and that exit rates, differently, go up after the reform, though less so for small firms. As a last figure we present, at the cost of a dramatic decrease in the number of observations, the variance of the changes in employment (in percentage terms) for small and large firms, by year and sector. The raw figures show that the volatility of employment has gone down after the reform for small firms while it has increased for large firms.

The next section presents regression results which control for covariates.

4.2 Effect on Accessions

Table 5, 6 and 7 report marginal effects of a linear probability model for accessions estimated using equations (1), (2) and (3). The dependent variable is a variable that takes the value of 1 if the person joined a firm in a given year and zero otherwise. In all specifications only permanent workers are included. Moreover, since we will use firms with more than 15 employees as a control group, in order to ease comparison across firms of different sizes only firms with no more than 35 workers are included.¹³

In Table 1 the baseline specification (column 1) controls for worker's age and occupation, firm size, and for sectoral, regional and year effects. The effect of interest is captured by the interaction between the post-reform dummy and a dummy for firms under 15 employees. The reported standard errors allow for clustering by period-size group to control for common random effects within these cells.

Panels A and B of Table 5 show the results for men and women, respectively. The results show a large and statistically significant decline in permanent accessions in small relative to large firms after the 1990 reform was introduced. Column (1) shows that accession probabilities decreased by 0.019 or 8.2% for men and by 0.02 or 9.2% for women in small relative to big firms during the reform years. Including sector-specific trends and sector productivity in columns (2) and (3) leaves the effects on accession probabilities basically unchanged to -0.018 for men and to between -0.02 for women.

Columns (4) and (5) of Table 5 report the results controlling for size-specific cyclical effects as in equation (3). The results for men in Panel A show a smaller (but still significant) effect of -0.012 and -0.01 using, respectively, the expansion dummy and the GDP growth to control for size-specific cyclical effects. By contrast, the results for women now show bigger effects of -0.027 and -0.026 when the size-specific cyclical effect is controlled with the expansion dummy and GDP growth, respectively.¹⁴

¹³Results are robust to changes in the 35 workers threshold.

¹⁴Since we are using panel data, it is of course possible to include worker effects to account,

Columns (6) includes the third-level interaction between the post-reform dummy, the small firm dummy and the volatility of employment growth, as described in equation (2).¹⁵ This confirms that our identification strategy is indeed capturing the effect of EPL.

Tables 6 and 7 report, separately for men and women, the effect of the 1990 reform on accessions by age groups. As to men, the more pronounced decrease in accessions took place for the middle-aged workers. Young and old men seem not to have been affected much. Differently, in the case of women the size of the decrease in the accession rate seems to go up monotonically with age. So, even though at first glance the effect of EPL does not seem to be vary much across genders, the analysis by age classes shows that the greatest reduction in the probability of a match is suffered by old women (around -0.074 or as much as 67.2%), while middle-aged men and women suffer a drop of around -0.021 or 9%. The effect on the young of either sexes is not significantly different from zero. The larger reduction in hiring of the elderly may be due to the fact that the dismissal costs, depending on the wage rate, increase with age.

4.3 Effect on Separations

Table 8, 9 and 10 report marginal effects of a linear probability model for separations. The dependent variable is now a variable that takes the value of 1 if the person separated from the firm in a given year and zero otherwise. The controls in these specifications are as in the linear probability models for accessions.

As before, in Table 8 Panel A reports the results for men and Panel B for women. The results show that separation probabilities decreased for both men and women. For example, the results from the basic specification show a decrease in separation probabilities of 0.029 or 9% for men and of 0.034 or 10.4% for women. Controlling for sector-specific trends and sector productivity (columns (2) and (3)) the point estimates increase slightly for men (-0.031) while remaining basically unchanged for women (between -0.035 and -0.033).

The results controlling for size-specific cyclical effects in Columns (4) and (5) of Table 8 show roughly similar effects (of between -0.026 and -0.031) for men

for instance, for the possibility that less-employable individuals may look for employment in smaller firms. The results, not reported, show similar but less precisely estimated results that does not reach significance at the conventional levels. The reason why fixed-effects estimates are less precise is due to the fact that workers entering the sample are not followed outside the employment status. This implies that *on average* the number of observation per individual is small (between 3 and 4) and therefore standard errors are large.

¹⁵Also in this case we have ran additional specifications (controlling for size-specific cyclical effects, sectoral productivity and individuals effects) that are in line with the results of column (6).

and larger effects (of between -0.0461 and -0.047) for women. When turning to the specifications including the third-level interaction between the post-reform dummy, the small firm dummy and the pre-reform volatility of employment growth in column (6), there does not seem to be a differential effect of EPL in more volatile sectors, as far as men are concerned. The opposite is true for women.

Tables 9 and 10 report, separately for men and women, the effect of the 1990 reform on separations by age groups. As to men, accessions go down for all groups, the older suffering the stronger effect. Moreover, for the latter group there is also evidence that the effect is stronger the higher the sector volatility. Turning to women, the old seem to be the least affected by the reform, while the probability of a separation goes down for both the young and, more pronouncedly, for middle-aged women. Evidence of a stronger effect of the reform on more volatile sectors appears in column (6) for all age groups.

4.4 Effect on Firms Entry and Exit

Table 11 reports marginal effects of a linear probability model for estimated using equation (4). The dependent variable is a dummy variable that takes the value of 1 if the firm entered (Panel A) or exited (Panel B) the market. While the data set includes a random sample of workers, the probability that a firm is selected increases with size. We account for this by weighting each observation by the probability that the firm actually appears in the sample, which is given by average number of employees divided by 90.¹⁶

In Table 11 the baseline specification (column 1) controls for fixed sectoral and region effects and for the total number of employees in the firm.

Panel A shows, consistently across all specifications, that the entry rate of small firms goes down relative to large firms after the 1990 reform. The range of the reduction lies between -0.005 (or 10% reduction) and -0.009 (or 18% reduction). Moreover, columns (7) and (8) show that the reduction in the entry rates is larger the larger the employment volatility.

Panel B shows, again consistently across all specifications, that the exit rate of small firms goes up relative to large firms after the 1990 reform. This is not surprising, since an increase in firing costs lowers the present value of the future stream of profits, thus leading to more exit. Again columns (7) and (8) show that the increase in the exit rates is larger the larger the employment volatility,

¹⁶As for accessions and separations, only firms with no more than 35 workers are included and the effect of interest is captured by the interaction between the post-reform dummy and a dummy for firms under 15 employees. Also in this case, the reported standard errors allow for clustering by period-size group to control for common random effects within these cells.

i.e. in sectors where the expected firing costs are higher.

4.5 Effect on Employment Policies at the Firm and Sector Level

Next, we analyze whether the increase in EPL flattens the labour demand of small firms relative to large firms. In order to do so, we regress the absolute value of firms' employment growth on the interaction between the post reform dummy and the small firm dummy, controlling for a number of covariates. Results are presented in Table 12. All specifications control for fixed sectoral and region effects and for the total number of employees in the firm. Column (2) includes sector specific trends and column (3) sectoral productivity. Columns (4) to (6) control for firms effect and for size-specific cyclical effects.

Panel A reports results assuming that errors are i.i.d., while in Panel B and C errors are assumed to follow an auto-regressive process of order one and two, respectively. All specifications show that the 1990 reform flattened the labour demand of small firms relative to large firms. The size of the reduction seems large, as the lowest point estimates (in columns (4)-(6) in panel A where we control for firms fixed-effect and for size-specific cyclical effects) are all approximately of -0.03 , which implies a drop in the of as much as 15% in the willingness to adjust employment over the cycle.

Finally, we ask whether the reform actually reduced the sectoral variance of employment. Therefore, we compute the variance of employment changes for small and large firms, by year and sector. Of course the number of observation drops dramatically - to 200 - since we are left with only 20 observation per year: the variance of small and large firms employment changes in ten sectors. Anyway, we use it as a dependent variable and regress it on controls¹⁷ plus the usual interaction between the post reform dummy and the small firm dummy. Results are reported in Table 13 and show that the variance of employment changes does become lower after 1990 in small firms relative to large ones.

5 Conclusion

In this paper, we present new evidence on the impact of dismissal costs on turnover and employment. We use an employer-employee panel from the Italian Social Security to empirically assess the causal effect of labour market regulations on economic outcomes. We do so by exploiting the fact that dismissal

¹⁷The specifications used are the same as in the previous tables, with the exclusion, of course, of the firm level controls.

costs increased after 1990 in Italy for firms with less than 15 employees relative to larger firms. This reform allows to adopt a differences-in-differences approach that arguably helps overcoming the identification problems usually plaguing both the studies using cross-country variation in EPL and the ones exploiting within-country variation in the enforcement of EPL.

We have results on the effect of the reform on workers accession and separation rates; firms entry and exit rates; the shape of firms employment policies over the cycle.

Controlling for a host of variables we find that both accession and separation probabilities went down after the reform for men and women in small firms relative to large firms, with the point estimates implying a decrease of as much as 10%. We also find that the effect is more pronounced in sectors that were more volatile before the reform. Moreover, we find that young workers of age below 25 did not experience any reductions in accession probabilities in small firms relative to large firms. This is consistent with the fact that, in small firms, the size of the firing costs depends on the wage rate, and is therefore arguably lower for young workers with shorter tenure.

As far as the effect of EPL on firms entry and exit rates, we find that the former went down in small firms relative to large firms, while the latter rate went up. Also in this case the effects appear to be stronger in sectors whose pre-reform employment volatility was larger.

Finally, [?] the estimates of the effect of the 1990 reform on firms employment growth rates show, not surprisingly, a negative effect, implying that the reform made small firms' employment policies flatter relative to large firms.

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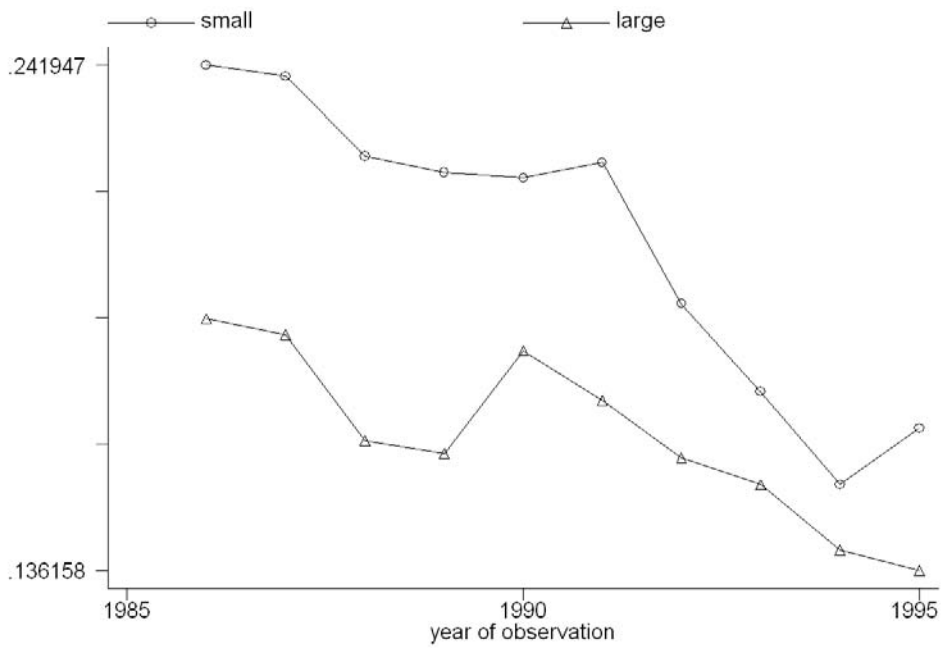


Figure 1: Yearly accession probabilities conditional on firm size (below/above 15 employees)

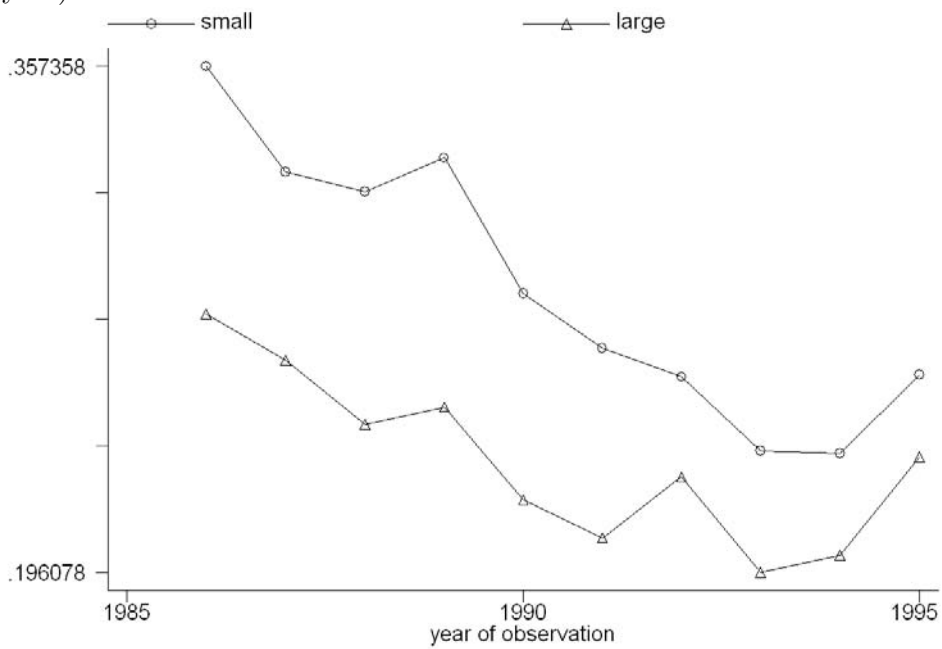


Figure 2: Yearly separation probabilities conditional on firm size (below/above 15 employees)

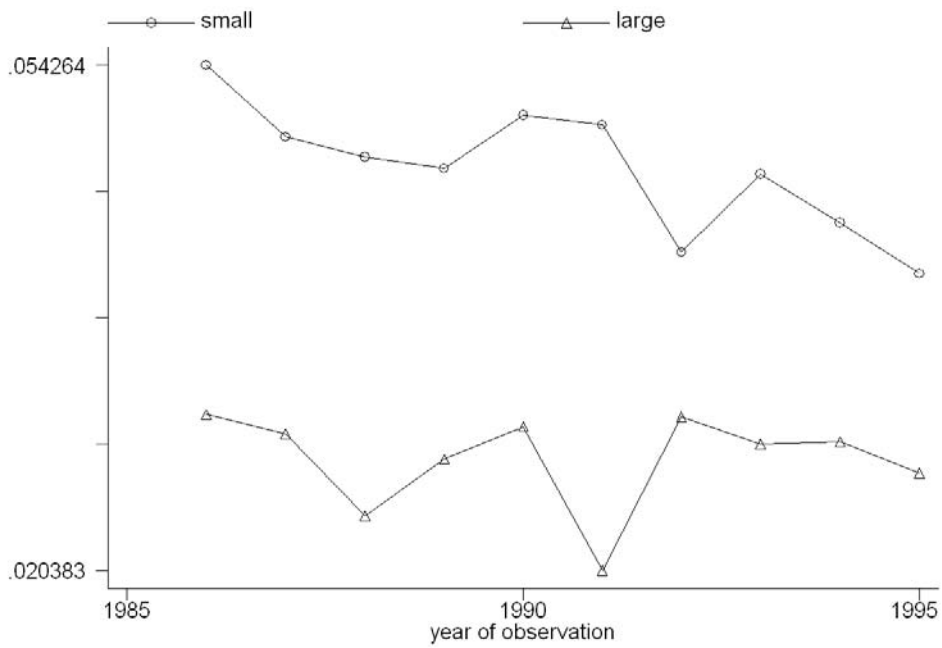


Figure 3: Yearly entry probabilities conditional on firm size (below/above 15 employees)

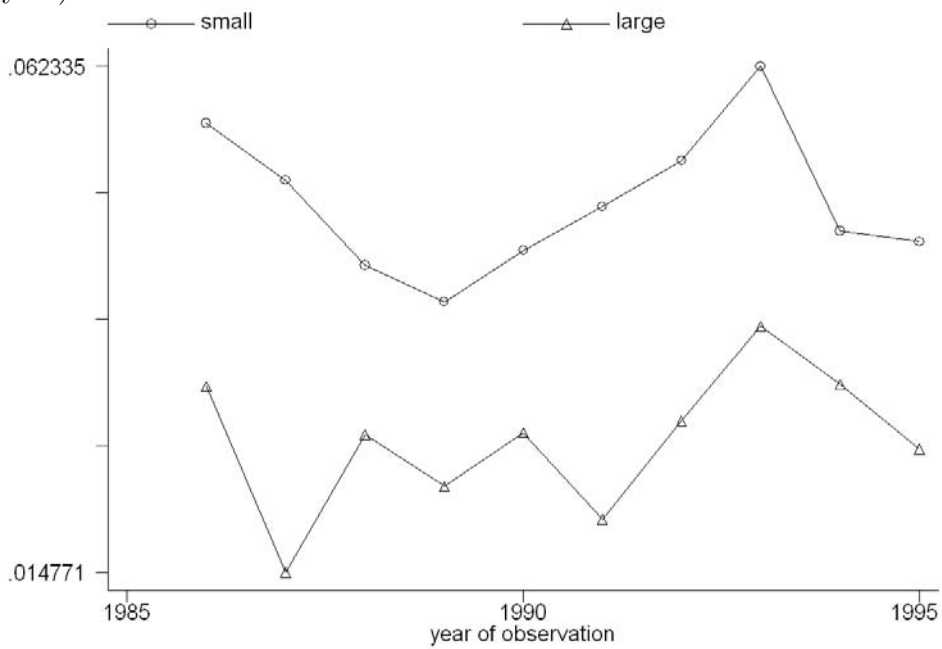


Figure 4: Yearly exit probabilities conditional on firm size (below/above 15 employees)

Table 1: Descriptive statistics by firm size, before and after the reform

Variables	Pre-reform		Post-reform	
	Small firms	Large firms	Small firms	Large firms
A. YOUNG (age ≤ 25)				
Age	22.52 (2.01)	23 (1.76)	22.47 (2.09)	22.95 (1.91)
% of males	0.56 (0.5)	0.57 (0.49)	0.55 (0.5)	0.56 (0.5)
% of blue collars	0.75 (0.44)	0.78 (0.41)	0.8 (0.4)	0.84 (0.37)
Yearly average size of the firm	6.05 (3.91)	6.34 (4.05)	24.51 (5.78)	23.64 (5.85)
Accession rate	0.27 (0.44)	0.23 (0.42)	0.23 (0.42)	0.21 (0.41)
Separation rate	0.36 (0.48)	0.29 (0.45)	0.29 (0.45)	0.24 (0.43)
<i>N</i>	4846	3001	1503	1079
B. MIDDLE AGE (26 ≤ age ≤ 50)				
Age	35.48 (7.09)	35.57 (7.01)	36.24 (7.1)	36.23 (7)
% of males	0.63 (0.48)	0.64 (0.48)	0.67 (0.47)	0.67 (0.47)
% of blue collars	0.61 (0.49)	0.63 (0.48)	0.63 (0.48)	0.65 (0.48)
Yearly average size of the firm	6.64 (4)	6.9 (4.17)	24.82 (5.73)	24.11 (5.87)
Accession rate	0.23 (0.42)	0.18 (0.38)	0.17 (0.38)	0.15 (0.36)
Separation rate	0.31 (0.46)	0.24 (0.43)	0.24 (0.43)	0.20 (0.4)
<i>N</i>	12533	14127	4931	6629
C. OLD (age > 50)				
Age	55.38 (3.26)	55.37 (3.4)	55.33 (3.53)	55.42 (3.4)
% of males	0.8 (0.4)	0.79 (0.4)	0.85 (0.36)	0.85 (0.36)
% of blue collars	0.8 (0.4)	0.78 (0.41)	0.81 (0.39)	0.73 (0.44)
Yearly average size of the firm	6.07 (4)	6.72 (4.24)	24.64 (5.71)	24.51 (5.8)
Accession rate	0.14 (0.35)	0.12 (0.33)	0.09 (0.29)	0.1 (0.29)
Separation rate	0.31 (0.46)	0.26 (0.44)	0.25 (0.44)	0.26 (0.44)
<i>N</i>	2169	2301	879	1113

Notes: Only permanent workers and firms below 35 workers are included. The pre-reform period goes from 1986 to 1990, the post-reform period from 1991 to 1995. Standard deviations in parenthesis.

Table 2: MEN. Descriptive statistics by firm size, before and after the reform

Variables	Pre-reform		Post-reform	
	Small firms	Large firms	Small firms	Large firms
A. YOUNG (age ≤ 25)				
Age	22.56 (2.03)	22.94 (1.81)	22.47 (2.16)	22.96 (1.87)
% of blue collars	0.90 (0.30)	0.93 (0.26)	0.87 (0.34)	0.9 (0.3)
Yearly average size of the firm	6.04 (3.82)	6.38 (3.97)	24.63 (5.66)	23.76 (5.88)
Accession rate	0.29 (0.46)	0.27 (0.44)	0.25 (0.43)	0.25 (0.43)
Separation rate	0.39 (0.49)	0.31 (0.46)	0.31 (0.46)	0.26 (0.44)
<i>N</i>	2722	1714	824	609
B. MIDDLE AGE (26 ≤ age ≤ 50)				
Age	36.06 (7.16)	35.93 (7.1)	37.01 (7.27)	36.86 (7.05)
% of blue collars	0.76 (0.43)	0.78 (0.41)	0.72 (0.45)	0.72 (0.45)
Yearly average size of the firm	6.72 (4.04)	7.01 (4.17)	24.79 (5.74)	24.29 (5.91)
Accession rate	0.23 (0.42)	0.18 (0.39)	0.17 (0.38)	0.15 (0.36)
Separation rate	0.3 (0.46)	0.24 (0.43)	0.23 (0.42)	0.19 (0.39)
<i>N</i>	7887	9090	3285	4432
C. OLD (age > 50)				
Age	55.51 (3.18)	55.56 (3.4)	55.35 (3.46)	55.57 (3.4)
% of blue collars	0.85 (0.36)	0.83 (0.38)	0.84 (0.37)	0.75 (0.43)
Yearly average size of the firm	6.26 (3.95)	6.87 (4.24)	24.62 (5.77)	24.41 (5.77)
Accession rate	0.15 (0.36)	0.13 (0.34)	0.1 (0.3)	0.1 (0.3)
Separation rate	0.31 (0.46)	0.27 (0.44)	0.24 (0.43)	0.27 (0.44)
<i>N</i>	1733	1829	747	942

Notes: Only permanent workers and firms below 35 workers are included. The pre-reform period goes from 1986 to 1990, the post-reform period from 1991 to 1995. Standard deviations in parenthesis.

Table 3: WOMEN. Descriptive statistics by firm size, before and after the reform

Variables	Pre-reform		Post-reform	
	Small firms	Large firms	Small firms	Large firms
A. YOUNG (age ≤ 25)				
Age	22.47 (2.00)	23.09 (1.69)	22.48 (2.00)	22.93 (1.96)
% of blue collars	0.55 (0.5)	0.59 (0.49)	0.73 (0.44)	0.76 (0.43)
Yearly average size of the firm	6.07 (4.02)	6.29 (4.16)	24.36 (5.92)	23.5 (5.82)
Accession rate	0.23 (0.42)	0.19 (0.4)	0.21 (0.41)	0.17 (0.37)
Separation rate	0.32 (0.46)	0.27 (0.45)	0.26 (0.44)	0.23 (0.42)
<i>N</i>	2124	1287	769	470
B. MIDDLE AGE (26 ≤ age ≤ 50)				
Age	34.5 (6.85)	34.92 (6.8)	34.72 (6.49)	34.95 (6.71)
% of blue collars	0.34 (0.47)	0.37 (0.48)	0.45 (0.5)	0.51 (0.5)
Yearly average size of the firm	6.51 (3.92)	6.71 (4.16)	24.89 (5.7)	23.73 (5.78)
Accession rate	0.22 (0.42)	0.17 (0.38)	0.17 (0.38)	0.14 (0.35)
Separation rate	0.33 (0.47)	0.23 (0.42)	0.26 (0.44)	0.21 (0.41)
<i>N</i>	4646	5037	1646	2197
C. OLD (age > 50)				
Age	54.88 (3.52)	54.66 (3.32)	55.25 (3.92)	54.6 (3.32)
% of blue collars	0.61 (0.49)	0.6 (0.49)	0.66 (0.48)	0.61 (0.49)
Yearly average size of the firm	5.31 (4.1)	6.11 (4.17)	24.72 (5.38)	25.06 (5.95)
Accession rate	0.11 (0.32)	0.08 (0.27)	0.07 (0.25)	0.09 (0.28)
Separation rate	0.31 (0.46)	0.24 (0.43)	0.32 (0.47)	0.23 (0.42)
<i>N</i>	436	472	132	171

Notes: Only permanent workers and firms below 35 workers are included. The pre-reform period goes from 1986 to 1990, the post-reform period from 1991 to 1995. Standard deviations in parenthesis.

Table 4: FIRMS. Descriptive statistics by firm size, before and after the reform

Variables	Pre-reform		Post-reform	
	Small firms	Large firms	Small firms	Large firms
Entry rate	0.050 (0.218)	0.045 (0.206)	0.028 (0.166)	0.027 (0.163)
Exit rate	0.048 (0.213)	0.052 (0.221)	0.025 (0.157)	0.029 (0.168)
Yearly average size of the firm	6.073 (3.923)	6.475 (4.141)	25.027 (5.662)	24.129 (5.861)
<i>N</i>	22207	22226	6921	8695
Variance of employment growth	0.137 (0.096)	0.127 (0.087)	0.025 (.0153)	0.095 (0.123)
<i>N</i>	50	50	49	49

Notes: Only firms below 35 workers are included. The pre-reform period goes from 1986 to 1990, the post-reform period from 1991 to 1995. Standard deviations in parenthesis.

Table 5: Effects of the 1990 reform on accessions by gender

Regressors	(1)	(2)	(3)	(4)	(5)	(6)
A. MEN - N = 35762						
Post 1990	0.014 (0.017)	0.001 (0.012)	0.002 (0.016)	-0.001 (0.017)	-0.007 (0.018)	0.002 (0.023)
Small firms	-0.023 (0.011)	-0.025 (0.012)	-0.025 (0.012)	-0.025 (0.012)	-0.039 (0.015)*	-0.068 (0.02)**
Post 1990 × Small firms	-0.019 (0.001)***	-0.018 (0.002)***	-0.018 (0.002)***	-0.012 (0.002)**	-0.01 (0.004)*	0.047 (0.006)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	-0.336 (0.01)***
B. WOMEN - N = 19276						
Post 1990	0.033 (0.02)	-0.011 (0.007)	-0.011 (0.01)	-0.008 (0.011)	-0.016 (0.014)	0.027 (0.021)
Small firms	0.043 (0.036)	0.043 (0.035)	0.043 (0.035)	0.043 (0.035)	0.053 (0.037)	0.07 (0.028)*
Post 1990 × Small firms	-0.02 (0.002)***	-0.02 (0.004)**	-0.02 (0.004)**	-0.027 (0.004)***	-0.026 (0.007)**	0.07 (0.002)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	-0.515 (0.016)***
Sector and Region fixed effects	YES	YES	YES	YES	YES	YES
Trend	YES	NO	NO	NO	NO	YES
Sector specific trends	NO	YES	YES	YES	YES	NO
Productivity	NO	NO	YES	YES	YES	NO
Recession dummy	NO	NO	NO	YES	NO	NO
GDP growth rate	NO	NO	NO	NO	YES	NO

Notes: Only permanent workers and firms below 35 workers are included. Robust standard errors in parenthesis allow for clustering by period/size. All specifications control for sectoral and region effects, age, occupation and total number of employees in the firm. Some specifications include sectoral productivity which is calculated as value-added deflated using a sector-level PPI over the number of workers using 1995 as the base year. Columns (4), and (5) control for size-specific cyclical effects. Column (4) interacts the small dummy with an expansion dummy, which takes the value of 1 for 1992-1993 and 0 otherwise, while column (5) interacts the small dummy with GDP growth. Column (6) includes interactions between the small firm dummy, the post reform dummy and the pre-reform variance of employment growth by sector and size. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 6: MEN. Effects of the 1990 reform on accessions by age groups

Regressors	(1)	(2)	(3)	(4)	(5)	(6)
A. YOUNG (age ≤ 25) - N = 5850						
Post 1990	0.007 (0.061)	-0.01 (0.053)	-0.008 (0.058)	-0.021 (0.06)	-0.028 (0.067)	-0.001 (0.064)
Small firms	-0.009 (0.019)	-0.012 (0.02)	-0.012 (0.02)	-0.012 (0.02)	-0.021 (0.032)	-0.061 (0.037)
Post 1990 × Small firms	-0.018 (0.005)**	-0.013 (0.006)	-0.013 (0.006)	0.003 (0.006)	-0.008 (0.023)	0.13 (0.005)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	-0.867 (0.039)***
B. MIDDLE AGE (26 ≤ age ≤ 50) - N = 24611						
Post 1990	0.011 (0.014)	0.005 (0.009)	0.006 (0.013)	0.003 (0.014)	-0.004 (0.015)	-0.004 (0.022)
Small firms	-0.033 (0.018)	-0.034 (0.018)	-0.034 (0.018)	-0.034 (0.018)	-0.055 (0.019)	-0.066 (0.018)**
Post 1990 × Small firms	-0.022 (0.001)***	-0.021 (0.001)***	-0.021 (0.001)***	-0.016 (0.001)***	-0.01 (0.002)**	0.017 (0.007)*
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	-0.152 (0.009)***
C. OLD (age > 50) - N = 5221						
Post 1990	0.024 (0.012)	-0.004 (0.011)	-0.006 (0.011)	-0.005 (0.011)	-0.002 (0.013)	0.011 (0.005)
Small firms	0.004 (0.008)	0.003 (0.011)	0.003 (0.011)	0.003 (0.01)	0.015 (0.017)	-0.094 (0.023)**
Post 1990 × Small firms	-0.014 (0.003)**	-0.009 (0.005)	-0.009 (0.005)	-0.006 (0.005)	-0.016 (0.002)***	0.165 (0.015)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	-0.981 (0.027)***
Sector and Region fixed effects	YES	YES	YES	YES	YES	YES
Trend	YES	NO	NO	NO	NO	YES
Sector specific trends	NO	YES	YES	YES	YES	NO
Productivity	NO	NO	YES	YES	YES	NO
Recession dummy	NO	NO	NO	YES	NO	NO
GDP growth rate	NO	NO	NO	NO	YES	NO

Notes: Only permanent workers and firms below 35 workers are included. Robust standard errors in parenthesis allow for clustering by period/size. All specifications control for sectoral and region effects, age, occupation and total number of employees in the firm. Some specifications include sectoral productivity which is calculated as value-added deflated using a sector-level PPI over the number of workers using 1995 as the base year. Columns (4), and (5) control for size-specific cyclical effects. Column (4) interacts the small dummy with an expansion dummy, which takes the value of 1 for 1992-1993 and 0 otherwise, while column (5) interacts the small dummy with GDP growth. Column (6) includes interactions between the small firm dummy, the post reform dummy and the pre-reform variance of employment growth by sector and size. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 7: WOMEN. Effects of the 1990 reform on accessions by age groups

Regressors	(1)	(2)	(3)	(4)	(5)	(6)
A. YOUNG (age ≤ 25) - N = 4563						
Post 1990	-0.027 (0.033)	-0.045 (0.02)	-0.051 (0.016)**	-0.022 (0.017)	-0.062 (0.047)	-0.024 (0.032)
Small firms	0.002 (0.028)	0 (0.029)	0 (0.029)	-0.001 (0.029)	0.003 (0.067)	0.233 (0.067)**
Post 1990 × Small firms	0.004 (0.001)**	0.011 (0.007)	0.01 (0.007)	-0.024 (0.007)**	0.008 (0.035)	0.029 (0.011)*
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	- -	- -	- -	- -	- -	-0.179 (0.066)*
B. MIDDLE AGE (26 ≤ age ≤ 50) - N = 13504						
Post 1990	0.047 (0.019)*	-0.013 (0.006)	-0.008 (0.015)	-0.011 (0.015)	-0.012 (0.016)	0.038 (0.021)
Small firms	0.04 (0.036)	0.042 (0.035)	0.041 (0.035)	0.041 (0.035)	0.056 (0.035)	-0.003 (0.028)
Post 1990 × Small firms	-0.021 (0.002)***	-0.025 (0.004)***	-0.024 (0.003)***	-0.026 (0.004)***	-0.032 (0.002)***	0.137 (0.002)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	- -	- -	- -	- -	- -	-0.902 (0.017)***
C. OLD (age > 50) - N = 1209						
Post 1990	0.074 (0.026)*	0.054 (0.02)*	0.035 (0.035)	0.017 (0.034)	0.022 (0.026)	(0.029) 0.229
Small firms	0.145 (0.044)**	0.149 (0.044)**	0.153 (0.041)**	0.155 (0.04)**	0.137 (0.029)**	(0.07)** -0.126
Post 1990 × Small firms	-0.075 (0.008)***	-0.083 (0.009)***	-0.087 (0.006)***	-0.074 (0.007)***	-0.078 (0.015)**	(0.014)*** 0.487
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	- -	- -	- -	- -	- -	(0.034)***
Sector and Region fixed effects	YES	YES	YES	YES	YES	YES
Trend	YES	NO	NO	NO	NO	YES
Sector specific trends	NO	YES	YES	YES	YES	NO
Productivity	NO	NO	YES	YES	YES	NO
Recession dummy	NO	NO	NO	YES	NO	NO
GDP growth rate	NO	NO	NO	NO	YES	NO

Notes: Only permanent workers and firms below 35 workers are included. Robust standard errors in parenthesis allow for clustering by period/size. All specifications control for sectoral and region effects, age, occupation and total number of employees in the firm. Some specifications include sectoral productivity which is calculated as value-added deflated using a sector-level PPI over the number of workers using 1995 as the base year. Columns (4), and (5) control for size-specific cyclical effects. Column (4) interacts the small dummy with an expansion dummy, which takes the value of 1 for 1992-1993 and 0 otherwise, while column (5) interacts the small dummy with GDP growth. Column (6) includes interactions between the small firm dummy, the post reform dummy and the pre-reform variance of employment growth by sector and size. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 8: Effects of the 1990 reform on separations by gender

Regressors	(1)	(2)	(3)	(4)	(5)	(6)
A. MEN - N = 35762						
Post 1990	-0.024 (0.016)	-0.045 (0.011)**	-0.045 (0.011)**	-0.039 (0.01)**	-0.03 (0.008)**	-0.037 (0.012)**
Small firms	-0.015 (0.024)	-0.014 (0.025)	-0.014 (0.025)	-0.014 (0.024)	-0.014 (0.024)	-0.02 (0.023)
Post 1990 × Small firms	-0.029 (0.001)***	-0.031 (0.002)***	-0.031 (0.002)***	-0.026 (0.002)***	-0.031 (0.002)***	-0.021 (0.002)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	0.028 (0.017)
B. WOMEN - N = 19276						
Post 1990	0.037 (0.015)*	-0.032 (0.008)**	-0.018 (0.012)	-0.021 (0.012)	-0.012 (0.013)	0.035 (0.015)
Small firms	0.034 (0.017)	0.034 (0.017)	0.033 (0.017)	0.033 (0.017)	0.059 (0.017)**	0.12 (0.031)**
Post 1990 × Small firms	-0.034 (0.001)***	-0.035 (0.003)***	-0.033 (0.003)***	-0.04 (0.004)***	-0.047 (0.005)***	0.13 (0.004)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	-0.994 (0.025)***
Sector and Region fixed effects	YES	YES	YES	YES	YES	YES
Trend	YES	NO	NO	NO	NO	YES
Sector specific trends	NO	YES	YES	YES	YES	NO
Productivity	NO	NO	YES	YES	YES	NO
Recession dummy	NO	NO	NO	YES	NO	NO
GDP growth rate	NO	NO	NO	NO	YES	NO

Notes: Only permanent workers and firms below 35 workers are included. Robust standard errors in parenthesis allow for clustering by period/size. All specifications control for sectoral and region effects, age, occupation and total number of employees in the firm. Some specifications include sectoral productivity which is calculated as value-added deflated using a sector-level PPI over the number of workers using 1995 as the base year. Columns (4), and (5) control for size-specific cyclical effects. Column (4) interacts the small dummy with an expansion dummy, which takes the value of 1 for 1992-1993 and 0 otherwise, while column (5) interacts the small dummy with GDP growth. Column (6) includes interactions between the small firm dummy, the post reform dummy and the pre-reform variance of employment growth by sector and size. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 9: MEN. Effects of the 1990 reform on separations by age groups

Regressors	(1)	(2)	(3)	(4)	(5)	(6)
A. YOUNG (age ≤ 25) - N = 5850						
Post 1990	-0.061 (0.018)**	-0.069 (0.008)***	-0.069 (0.012)***	-0.048 (0.012)**	-0.019 (0.02)	-0.074 (0.016)**
Small firms	0.016 (0.029)	0.019 (0.029)	0.019 (0.029)	0.02 (0.029)	0.048 (0.027)	0.079 (0.068)
Post 1990 × Small firms	-0.029 (0.004)***	-0.035 (0.007)**	-0.035 (0.007)**	-0.04 (0.008)**	-0.05 (0.011)**	-0.057 (0.005)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	0.245 (0.067)**
B. MIDDLE AGE (26 ≤ age ≤ 50) - N = 24611						
Post 1990	-0.035 (0.011)*	-0.047 (0.009)**	-0.047 (0.009)**	-0.042 (0.009)**	-0.036 (0.009)**	-0.052 (0.009)***
Small firms	-0.028 (0.028)	-0.027 (0.029)	-0.027 (0.029)	-0.027 (0.029)	-0.035 (0.03)	-0.057 (0.027)
Post 1990 × Small firms	-0.018 (0.001)***	-0.021 (0.003)***	-0.021 (0.003)***	-0.015 (0.002)***	-0.016 (0.003)***	-0.013 (0.003)**
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	0.07 (0.025)*
C. OLD (age > 50) - N = 5221						
Post 1990	0.024 (0.053)	-0.036 (0.035)	-0.038 (0.036)	-0.037 (0.039)	-0.022 (0.043)	0.005 (0.043)
Small firms	0.017 (0.03)	0.014 (0.037)	0.014 (0.037)	0.014 (0.037)	0.055 (0.041)	-0.027 (0.066)
Post 1990 × Small firms	-0.055 (0.003)***	-0.047 (0.003)***	-0.048 (0.003)***	-0.049 (0.004)***	-0.071 (0.005)***	0.125 (0.009)***
Post 1990×Small firms× Pre-reform variance of empl. growth by sector	-	-	-	-	-	-0.96 (0.034)***
Sector and Region fixed effects	YES	YES	YES	YES	YES	YES
Trend	YES	NO	NO	NO	NO	YES
Sector specific trends	NO	YES	YES	YES	YES	NO
Productivity	NO	NO	YES	YES	YES	NO
Recession dummy	NO	NO	NO	YES	NO	NO
GDP growth rate	NO	NO	NO	NO	YES	NO

Notes: Only permanent workers and firms below 35 workers are included. Robust standard errors in parenthesis allow for clustering by period/size. All specifications control for sectoral and region effects, age, occupation and total number of employees in the firm. Some specifications include sectoral productivity which is calculated as value-added deflated using a sector-level PPI over the number of workers using 1995 as the base year. Columns (4), and (5) control for size-specific cyclical effects. Column (4) interacts the small dummy with an expansion dummy, which takes the value of 1 for 1992-1993 and 0 otherwise, while column (5) interacts the small dummy with GDP growth. Column (6) includes interactions between the small firm dummy, the post reform dummy and the pre-reform variance of employment growth by sector and size. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 10: WOMEN. Effects of the 1990 reform on separations by age groups

Regressors	(1)	(2)	(3)	(4)	(5)	(6)
A. YOUNG (age ≤ 25) - N = 4563						
Post 1990	0.055 (0.024)	-0.004 (0.02)	0.014 (0.022)	0.026 (0.023)	0.035 (0.03)	0.04 (0.023)
Small firms	0.022 (0.016)	0.017 (0.013)	0.016 (0.014)	0.015 (0.014)	0.044 (0.031)	0.175 (0.061)*
Post 1990 × Small firms	-0.02 (0.003)***	-0.015 (0.003)**	-0.011 (0.004)*	-0.033 (0.003)**	-0.028 (0.022)	0.093 (0.015)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	-0.627 (0.082)***
B. MIDDLE AGE (26 ≤ age ≤ 50) - N = 13504						
Post 1990	0.022 (0.016)	-0.04 (0.007)**	-0.033 (0.01)**	-0.035 (0.01)**	-0.023 (0.013)	0.019 (0.017)
Small firms	0.036 (0.027)	0.038 (0.027)	0.038 (0.027)	0.037 (0.027)	0.071 (0.027)*	0.105 (0.026)*
Post 1990 × Small firms	-0.04 (0.002)***	-0.045 (0.005)***	-0.044 (0.005)***	-0.051 (0.005)***	-0.062 (0.008)***	0.135 (0.006)***
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	-1.044 (0.036)***
C. OLD (age > 50) - N = 1209						
Post 1990	0.063 (0.07)	-0.042 (0.034)	0.009 (0.034)	-0.053 (0.032)	-0.056 (0.038)	0.095 (0.059)
Small firms	0.031 (0.061)	0.055 (0.054)	0.043 (0.057)	0.047 (0.055)	-0.051 (0.052)	0.135 (0.054)
Post 1990 × Small firms	0.01 (0.011)	-0.001 (0.012)	0.008 (0.009)	0.053 (0.009)***	0.058 (0.013)**	0.059 (0.026)
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	-	-	-	-	-	-0.502 (0.149)*
Sector and Region fixed effects	YES	YES	YES	YES	YES	YES
Trend	YES	NO	NO	NO	NO	YES
Sector specific trends	NO	YES	YES	YES	YES	NO
Productivity	NO	NO	YES	YES	YES	NO
Recession dummy	NO	NO	NO	YES	NO	NO
GDP growth rate	NO	NO	NO	NO	YES	NO

Notes: Only permanent workers and firms below 35 workers are included. Robust standard errors in parenthesis allow for clustering by period/size. All specifications control for sectoral and region effects, age, occupation and total number of employees in the firm. Some specifications include sectoral productivity which is calculated as value-added deflated using a sector-level PPI over the number of workers using 1995 as the base year. Columns (4), and (5) control for size-specific cyclical effects. Column (4) interacts the small dummy with an expansion dummy, which takes the value of 1 for 1992-1993 and 0 otherwise, while column (5) interacts the small dummy with GDP growth. Column (6) includes interactions between the small firm dummy, the post reform dummy and the pre-reform variance of employment growth by sector and size. *** denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 11: Effects of the 1990 reform on firms' entry and exit

Regressors	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. DEPENDENT VARIABLE: ENTRY DUMMY - N = 60562								
Post 1990	0.008 (0.008)	0.009 (0.007)	0.01 (0.008)	0.019 (0.005)***	0.014 (0.005)***	0.01 (0.005)**	0.004 (0.01)	0.007 (0.007)
Small firms	-0.066 (0.023)*	-0.066 (0.023)*	-0.066 (0.023)*	-0.001 (0.007)	-0.002 (0.007)	0.003 (0.009)	-0.113 (0.021)**	-0.019 (0.033)
Post 1990 × Small firms	-0.005 (0.001)**	-0.005 (0.001)**	-0.005 (0.001)**	-0.009 (0.005)*	-0.009 (0.005)*	-0.012 (0.006)**	0.035 (0.004)***	0.026 (0.019)
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	- -	- -	- -	- -	- -	- -	-0.218 (0.009)***	-0.216 (0.113)*
B. DEPENDENT VARIABLE: EXIT DUMMY - N = 60562								
Post 1990	0.007 (0.001)***	0.008 (0.002)**	0.008 (0.002)**	-0.03 (0.005)***	-0.032 (0.005)***	-0.031 (0.006)***	-0.001 (0.001)	-0.031 (0.007)***
Small firms	-0.11 (0.024)**	-0.109 (0.024)**	-0.109 (0.024)**	-0.031 (0.007)***	-0.031 (0.007)***	-0.029 (0.009)***	-0.138 (0.024)***	0.049 (0.034)
Post 1990 × Small firms	0.011 (0.001)***	0.009 (0.002)**	0.009 (0.002)**	0.028 (0.005)***	0.026 (0.005)***	0.027 (0.006)***	-0.012 (0.003)**	0.015 (0.02)
Post 1990×Small firms×Pre-reform variance of empl. growth by sector	- -	- -	- -	- -	- -	- -	0.183 (0.013)***	0.076 (0.116)
Sector and Region fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Trend	YES	NO	NO	NO	NO	NO	YES	NO
Sector specific trends	NO	YES	YES	YES	YES	YES	NO	NO
Productivity	NO	NO	YES	YES	YES	YES	NO	YES
Recession dummy	NO	NO	NO	NO	YES	NO	NO	NO
GDP growth rate	NO	NO	NO	NO	NO	YES	NO	YES
Firms fixed effects	NO	NO	NO	YES	YES	YES	NO	YES

Notes: Only firms below 35 workers are included. Robust standard errors in parenthesis allow for clustering by period/size. When possible, observations are weighted for the probability that a firms actually enters the sample (given by the average number of employees/90). All specifications control for fixed sectoral and region effects and for the total number of employees in the firm. Some specifications include sectoral productivity which is calculated as value-added deflated using a sector-level PPI over the number of workers using 1995 as the base year. Columns (5), and (6) control for size-specific cyclical effects. Column (4) interacts the small dummy with an expansion dummy, which takes the value of 1 for 1992-1993 and 0 otherwise, while columns (6) interacts the small dummy with GDP growth. Columns (7) and (8) include interactions between the small firm dummy, the post reform dummy and the pre-reform variance of employment growth by sector and size. *** Denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 12: Effects of the 1990 reform on firms' labour demand

Regressors	(1)	(2)	(3)	(4)	(5)	(6)
DEPENDENT VARIABLE: Absolute value of the growth rate of employment - N = 41586						
<i>A. i.i.d errors</i>						
Post 1990	0.05 (0.002)***	0.056 (0.002)***	0.05 (0.002)***	0.025 (0.01)	0.017 (0.011)	0.018 (0.011)
Small firms	0.166 (0.026)***	0.169 (0.025)***	0.169 (0.025)***	0.075 (0.015)***	0.075 (0.015)***	0.07 (0.018)***
Post 1990 × Small firms	-0.051 (0.002)***	-0.057 (0.002)***	-0.057 (0.003)***	-0.032 (0.01)***	-0.032 (0.011)***	-0.029 (0.011)***
<i>B. AR(1)</i>						
Post 1990	0.039 (0.007)***	0.04 (0.007)***	0.039 (0.007)***			
Small firms	0.081 (0.008)***	0.083 (0.008)***	0.083 (0.008)***			
Post 1990 × Small firms	-0.047 (0.006)***	-0.05 (0.006)***	-0.05 (0.006)***			
<i>C. AR(2)</i>						
Post 1990	0.039 (0.007)***	0.04 (0.007)***	0.039 (0.007)***			
Small firms	0.081 (0.008)***	0.083 (0.008)***	0.083 (0.008)***			
Post 1990 × Small firms	-0.047 (0.006)***	-0.05 (0.006)***	-0.05 (0.006)***			
Sector and Region fixed effects	YES	YES	YES	YES	YES	YES
Trend	YES	NO	NO	NO	NO	NO
Sector specific trends	NO	YES	YES	YES	YES	YES
Productivity	NO	NO	YES	YES	YES	YES
Recession dummy	NO	NO	NO	NO	YES	NO
GDP growth rate	NO	NO	NO	NO	NO	YES
Firms fixed effects	NO	NO	NO	YES	YES	YES

Notes: Only firms below 35 workers are included. In panel A robust standard errors in parenthesis allow for clustering by period/size. When possible, observations are weighted for the probability that a firms actually enters the sample (given by the average number of employees/90). All specifications control for fixed sectoral and region effects and for the total number of employees in the firm. Some specifications include sectoral productivity which is calculated as value-added deflated using a sector-level PPI over the number of workers using 1995 as the base year. Columns (5), and (6) control for size-specific cyclical effects. Column (4) interacts the small dummy with an expansion dummy, which takes the value of 1 for 1992-1993 and 0 otherwise, while columns (6) interacts the small dummy with GDP growth. *** Denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.

Table 13: Effects of the 1990 reform on the variance of employment growth rates

Regressors	(1)	(2)	(3)	(4)	(5)
DEPENDENT VARIABLE: variance of employment growth of small and large firms by year and sector					
N = 198					
Post 1990	0.078 (0.022)**	0.078 (0.023)**	0.078 (0.023)**	0.063 (0.029)**	0.069 (0.032)
Small firms	0.116 (0.002)***	0.117 (0.002)***	0.117 (0.002)***	0.117 (0.002)***	0.118 (0.004)***
Post 1990 × Small firms	-0.08 (0.001)***	-0.08 (0.001)***	-0.08 (0.001)***	-0.082 (0.001)***	-0.08 (0.003)***
Sector and Region fixed effects	YES	YES	YES	YES	YES
Trend	YES	NO	NO	NO	NO
Sector specific trends	NO	YES	YES	YES	YES
Productivity	NO	NO	YES	YES	YES
Recession dummy	NO	NO	NO	YES	NO
GDP growth rate	NO	NO	NO	NO	YES

Notes: Only firms below 35 workers are included. Robust standard errors in parenthesis allow for clustering by period/size. All specifications control for fixed sectoral and region effects. Sectoral productivity is calculated as value-added deflated using a sector-level PPI over the number of workers using 1995 as the base year. Columns (4), and (5) control for size-specific cyclical effects. Column (4) interacts the small dummy with an expansion dummy, which takes the value of 1 for 1992-1993 and 0 otherwise, while columns (5) interacts the small dummy with GDP growth. *** Denotes significance at the 1% level, ** denotes significance at the 5% level and * denotes significance at the 10% level.