

**Title:** How does employment protection legislation influence hiring and firing decisions by the smallest firms?

**Summary:**

This paper examines the impact of employment protection legislation (EPL) on hiring decisions by own-account workers and firing decisions by very small firms (1-4 employees). Using data from the EU-15 countries, our results show that the strictness of employment protection legislation is negatively related to both these types of decisions, and hence, to labour mobility among the smallest firms. This new evidence may be useful for governments aiming to create a more enabling macro-environment for employment and productivity growth.

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## 1. Introduction

The global economy faces a threatening downward spiral as a result of the financial and economic crisis of 2008. In some European economies, the problem is strongly exacerbated by a substantial increase in unemployment rates and a decrease in competitiveness. Therefore, the challenge is not just to start and strengthen the economic resurgence, but also to ensure this recovery is accompanied by employment and productivity growth. In this respect, there is near consensus among academics and policymakers that entrepreneurship is a major driver of economic growth, job creation, and competitiveness in global markets. Consequently, any successful strategy to get out of the jobs crisis should recognize entrepreneurship as a key element.<sup>1</sup> There is a heated debate in Europe, however, about the role of labour market regulation (Millán *et al.*, 2012; Román *et al.*, 2011, 2013). On the one hand, strong employment protection is good for employees as it protects their rights. Hence, in environments with strong employment protection, the number of job dismissals is likely to be lower. On the other hand, it may not be so good for unemployed individuals since the risk for entrepreneurs of hiring an employee is bigger: if it turns out the new employee does not perform as well as expected, or if the firm is forced to downsize due to external circumstances, the costs of dismissing the employee are relatively high. This increased risk of hiring employees related to strong employment protection may make entrepreneurs more cautious to take on employees. And in an environment where the entrepreneur's risk of hiring people is higher, the number of new jobs created is also likely to be lower. So, while strong employment protection may be good for individuals *having* a job (the 'insiders'), it may not be so good for individuals *looking for* a job (the 'outsiders'). This paradox is known as the insider-outsider problem of employment protection (see Lindbeck and Snower, 2001 for a survey).

Strict employment protection may thus lower the levels of both hiring and firing of employees. This, in turn, may cause levels of labour mobility – the movement of workers between firms – to be lower as well. As labour mobility between firms is an important source of knowledge spillovers, and thereby of productivity growth (Stephan, 1996; Breschi and Lissoni, 2001; Cooper, 2001; Power and Lundmark, 2004), the impact of Employment Protection Legislation (henceforth EPL) on hiring and firing decisions is an important topic

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<sup>1</sup> The key role of entrepreneurship as a major driver of economic growth, job creation, and competitiveness in global markets has been well documented in academic publications (see Van Praag and Versloot, 2007 for a comprehensive survey) and policy reports (see, for instance, the new *Europe 2020 strategy*).

of investigation.<sup>2</sup> In this paper we empirically investigate if and to what extent strict EPL (i) prevents the hiring of employees by own-account workers; and (ii) hampers the firing of employees by employers of very small firms (1-4 employees). We focus on the smallest firm category because EPL disproportionately affects the smallest firms, as in these firms the hiring and firing costs are bigger relative to total labour costs. In other words, small firms suffer a scale disadvantage when EPL is high. Moreover, in small firms there is less flexibility to accommodate a poorly performing worker towards a different occupation within the firm (Parker, 2007, p. 704). Hence, the impact of EPL on hiring and firing decisions, and hence on the level of labour mobility, is expected to be especially strong for (very) small firms. In our empirical analysis, random effects logit models are applied to individual level data drawn from the European Community Household Panel for the EU-15 countries. The individual level data are complemented by a macro level indicator reflecting the strictness of employment protection, developed by OECD.

## **2. State of the art**

The literature on the determinants of job creation by the self-employed remains rather limited: see, for example, Carroll *et al.* (2000) and Mathur (2010) for the US; Westhead and Cowling (1995), Burke *et al.* (2000, 2002, 2009), Cowling *et al.* (2004) and Henley (2005) for the UK; and Congregado *et al.* (2010) for the EU-15. As regards job dismissals by the group of employers, the literature only adopted tangential approaches to the phenomenon by means of survival analysis: see, for instance, Millán *et al.* (2010) for the EU-15. To the best of our knowledge, an analysis of the impact of the strictness of employment protection on the individual decisions of (i) own-account workers to hire employees; and (ii) employers to fire employees, does not exist to date. This is the research gap we are aiming to fill in the current paper.

## **3. Methods**

### *3.1. Data*

We use data from the European Community Household Panel (henceforth ECHP) covering the period 1994-2001. The ECHP, designed and coordinated by EUROSTAT, is a

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<sup>2</sup> Although a positive impact on productivity growth may be associated with lower employment levels (as the same output can be produced with less workers), empirical evidence points in the opposite direction: regions that achieve productivity growth often also achieve employment growth because the market volume increases as a result of increased competitiveness (Fritsch, 2008).

standardised multi-purpose annual longitudinal survey carried out at the level of the EU-15.<sup>3</sup> Additional details on the ECHP data can be found in Peracchi (2002).

### 3.2. *Sample*

Two different samples are used in this analysis where, as usual, persons younger than 18 and older than 65, workers in the agricultural industries and those individuals working part-time are excluded. Our first sample includes individuals who are own-account workers for some particular period and then either change their labour force status to employers employing between 1 and 4 employees or remain as own-account workers at a later period. This dataset yields 8,380 observations (3,324 individuals) of which 1,201 (14.3%) refer to transitions to employer. Our second sample includes individuals who are employers employing between 1 and 4 employees for some particular period and then either change their labour force status to own-account workers or remain as employers at a later period. This second dataset yields 6,912 observations (2,911 individuals) of which 945 (13.7%) refer to transitions to own-account worker.<sup>4</sup>

### 3.3. *Estimation methods*

We use random effects binary logit models that control for unobserved heterogeneity across individuals. Models that control for unobserved heterogeneity across countries are used as robustness checks (not shown for brevity, but available on request). Both approaches yield similar results. Furthermore, both these approaches show no major changes relative to simple pooled regressions (also not shown). This suggests that, even if some unobserved heterogeneity may exist, it does not affect our estimates.

### 3.4. *Measures*

#### 3.4.1. *Dependent variables (Data source: ECHP)*

*Transitions from own-account worker to employer (1-4 employees):* The dependent variable is a discrete variable that equals 1 for individuals who are own-account workers in period  $t$  and become employers in a firm with 1-4 employees in period  $t+1$ . Note that such a transition

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<sup>3</sup> France, Luxembourg and Sweden were excluded from our analysis because these countries presented missing values for several relevant variables.

<sup>4</sup> The exclusion of those employers employing more than 4 employees reduces the number of transitions from own-account worker to employer with 133 observations. Similarly, the number of transitions from employer to own-account worker is reduced with 149 observations. As a robustness check, we also estimated our models using data of all employer sizes. Results are qualitatively the same as presented in Table 2, and are available on request.

implies hiring of new employees. It equals 0 for individuals who remain as own-account workers in periods  $t$  and  $t+1$ .

*Transitions from employer (1-4 employees) to own-account worker:* The dependent variable is a discrete variable that equals 1 for individuals who are employers in a firm of 1-4 employees in period  $t$  and become own-account workers in period  $t+1$ . Note that such a transition may imply firing of employees. It equals 0 for individuals who remain as employers in periods  $t$  and  $t+1$ .

### 3.4.2. Independent variables

*Main explanatory variable: EPL (Data source: OECD Employment Database)*

This indicator is intended to measure the strictness of EPL and is scaled to lie between 0 and 6, from less to more protected workers. As defined by the OECD, EPL refers to regulations about hiring (e.g., rules favouring disadvantaged groups, conditions for using temporary or fixed-term contracts, and training requirements) and firing (e.g., redundancy procedures, mandated pre-notification periods and severance payments, special requirements for collective dismissals, and short-time work schemes).

As an illustration, Figure 1 below shows the evolution of the EPL index for selected countries with different levels of labour market stringency. On average for the countries in our data sample, the EPL-index slightly decreases over the period considered. Furthermore, Table 1 summarizes the specific legislative changes associated with the within-country variation of the EPL index in these countries. See OECD (1999, 2004) for additional details.

--- *Insert Figure 1 about here* ---

--- *Insert Table 1 about here* ---

*Control variables (Data source: ECHP)*

The empirical models include some sets of explanatory variables at the individual level that are known to influence entrepreneurial performance: demographic characteristics, formal education, incomes, job characteristics and country dummies (see Parker, 2009 and Millán *et al.*, 2012 for overviews). The inclusion of country dummies combined with the fact that our EPL-variable is time-dependent allows us to pick out the effect of an increase in EPL over

time within the same country, as opposed to capturing the impact of simple cross-country variations.<sup>5</sup>

#### 4. Results and discussion

Estimation results are presented in Table 2. We use the same estimation strategy in both models by using two different specifications. Our first specification includes all control variables as predictors, and serves as our baseline model (Baselines A and B). Our second specification then adds the OECD measure of employment protection described in subsection 3.4.2 (Models 1A and 1B). Each specification is presented in a two-column format. The first column shows the marginal effects whereas t-statistics are presented in the second column.<sup>6</sup>

--- *Insert Table 2 about here* ---

By and large, results for the micro level control variables are in line with theoretical expectations. In particular, the impact of tertiary education and the household's income of own-account workers are consistently positively related to the probability that own-account workers become employers. Similarly, the impact of tertiary education and the household's income of employers are consistently negatively related to the probability that employers become own-account workers.

Regarding our indicator of the labour market regulations at place in a certain country, *first*, we find a negative impact of EPL on the probability of switching from own-account worker to employer. As the EPL variable is measured as an index, interpretation of the marginal effect is not straightforward. To provide an intuition of the magnitude of the effect, let us provide an illustration. For the twelve countries in our data sample, the average difference between the maximum and minimum value (within one country) over the eight-year period under consideration (1994-2001) is 0.43. The marginal effect in model 1A (-0.068) implies that for a decrease of the index with 0.43, the probability of hiring employees increases with about 2.9%-point. Given that the predicted probability evaluated in the sample means is about 12%, the impact of EPL may be considered substantial. As argued by Parker (2007), EPL imposes sunk costs for self-employed workers who decide to take on employees and our

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<sup>5</sup> We do not use time dummies as it is the over-time variation in the EPL-index that we want to exploit.

<sup>6</sup> The robustness of our t-statistics has been checked by re-estimating them from variance-covariance matrices of the coefficients obtained by bootstrapping.

results suggest that this causes many own-account workers to refrain from hiring employees. This result is also consistent with Van Stel *et al.* (2007) who found that stricter EPL is negatively related to entrepreneurship rates across a sample of 39 countries, and in particular with *opportunity* entrepreneurship, the type of entrepreneurship that is more likely to employ personnel (compared with *necessity* entrepreneurship).

*Second*, concerning firing decisions, the marginal effect shown in model 1B ( $-0.072$ ) implies that for a decrease in EPL of 0.43 (as above), the probability of switching from employer to own-account worker increases with about 3.1%-point. As expected, lower employment protection increases the number of job dismissals. Hence, for a realistic decrease in EPL as described above, hiring chances by own-account workers increase by 2.9%-point while firing chances by employers increase by 3.1%-point. These magnitudes may be considered economically relevant. We cannot draw conclusions as to whether hiring or firing decisions dominate as a result of lowering EPL, for two reasons. First, the difference between the two effects is not statistically significant. Second, we do not have information about hirings and firings that may occur within the employer firm category employing 1-4 employees (as an employer who initially employs, for instance, two employees, and then subsequently hires or fires one employee, will still be an employer in the next period).

So, although we cannot draw final conclusions concerning the net employment effect of changes in EPL, it is clear from our empirical analysis that job turnover, and hence the level of labour mobility, increases when EPL decreases: the impact of EPL on both transition probabilities (from own-account worker to employer and vice versa) is highly significant and economically relevant, as demonstrated above.

## **5. Conclusions**

During deep recessions with big employment losses and decreases in competitiveness, the appropriateness of measures that might lead to employment and productivity growth is a highly relevant policy issue. Our empirical analysis shows that the strictness of EPL is negatively related to the probability that own-account workers take on employees and hence, become employers. On the other hand, we also find that strict EPL lowers the number of job dismissals. These results suggest the existence of a trade-off of higher EPL in terms of benefits for those individuals who have a job (the ‘insiders’) and those who don’t (the ‘outsiders’). Although employees are better off in an environment of strict EPL (their rights

are better protected), unemployed individuals may actually find it harder to find a job in such an environment as entrepreneurs face higher risks when employing personnel, and hence will less often decide to hire employees.

Although we cannot make final conclusions as to whether hiring or firing decisions dominate as a result of lower EPL, what is clear from our analysis is that lowering EPL is strongly associated with higher labour mobility among the smallest of firms. And since labour mobility has been found to be an important source of knowledge spillovers and productivity growth, (Stephan, 1996; Breschi and Lissoni, 2001; Cooper, 2001; Power and Lundmark, 2004), EPL seems to have a profound impact on micro- and macro-economic outcomes. Therefore, governments may find the piece of evidence provided in the current paper useful when evaluating their labour market regulations.

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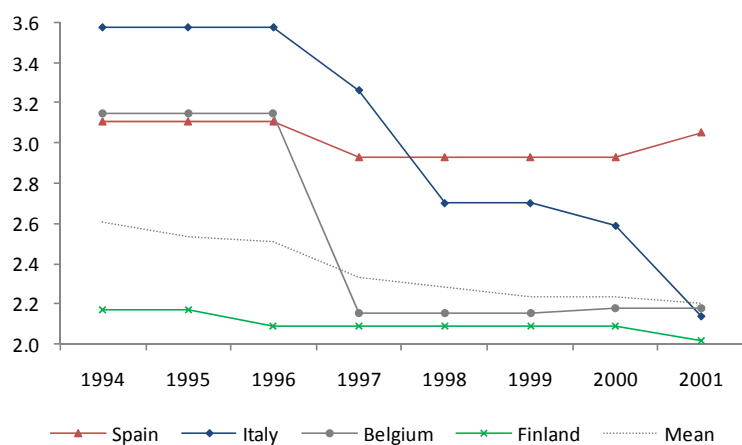
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- To be inserted in the text -

**Figure 1.** Evolution of the EPL index for selected countries



Notes: Mean refers to the EU-15 countries in our sample (excluding France, Luxembourg and Sweden)  
 Source: OECD Employment Database

**Table 1.** Legislative changes affecting EPL index for selected countries

Country	Year	Reform description	EPL index
Belgium	1997	Restrictions on TWA were reduced and FTC were made renewable	-
	2000	Tightening of rule concerning notice period and compensation in case of unjustified dismissal for blue-collar workers	+
Finland	1996	Notice period was halved for workers with tenure less than 1 year	-
	2001	The new employment contract act came into force reducing notice periods further	-
Italy	1997	<i>Treu package</i> on FTC widened the number of valid cases for the use of FTC	-
	1998	TWA were permitted	-
	2000	Reform of TWA 2000 extended the use of TWA and removed the restrictions concerning unskilled workers	-
	2001	Legislative Decree no. 368/2001 expanded valid cases for the use of FTC	-
Spain	1997	Maximum compensation for unfair dismissal was reduced and some changes were made to the definition of fair dismissal	-
	2001	Law 12/2001 tightened the rules governing valid cases for the use of FTC	+

Notes: TWA (temporary work agencies); FTC (fixed-term contracts)  
 Source: OECD (2004), Table 2.A2.6, pp. 119-120.

**Table 2.** Determinants of the transitions

Transitions Model	From own-account worker to employer				From employer to own-account worker			
	Baseline A		Model 1A		Baseline B		Model 1B	
Predicted probability (y)	0.120		0.118		0.095		0.092	
Independent variables (x)	dy / dx	t-stat.	dy / dx	t-stat.	dy / dx	t-stat.	dy / dx	t-stat.
<i>Employment protection</i>								
EPL index (0-6)			-0.068	-3.64***			-0.072	-4.12***
<i>Demographic characteristics</i>								
Female <sup>a</sup>	-0.005	-0.61	-0.005	-0.56	0.016	1.66*	0.016	1.70*
Age (18-65)	-0.001	-0.46	-0.001	-0.42	-0.003	-0.88	-0.003	-0.94
Age (squared)	-1.0E-6	-0.03	-2.6E-6	-0.07	3.7E-5	1.00	3.8E-5	1.06
Cohabiting <sup>a</sup>	0.012	1.33	0.012	1.28	-0.011	-1.02	-0.011	-1.05
Number of children under 14	-0.003	-0.60	-0.003	-0.62	-0.003	-0.79	-0.003	-0.69
<i>Formal education</i>								
Basic education <sup>a</sup> (ref.)								
Secondary education <sup>a</sup>	0.007	0.75	0.007	0.77	-0.011	-1.30	-0.013	-1.47
Tertiary education <sup>a</sup>	0.021	1.89*	0.020	1.84*	-0.024	-2.56**	-0.024	-2.61***
<i>Incomes</i>								
Money left to save in the household <sup>a</sup>	0.022	2.68***	0.021	2.65***	-0.032	-4.28***	-0.032	-4.31***
<i>Job characteristics</i>								
Working hours	0.002	1.34	0.002	1.34	-0.004	-2.53**	-0.004	-2.45**
Working hours (squared)	-1.9E-5	-1.20	-1.9E-5	-1.20	2.8E-5	1.90*	2.7E-5	1.86*
Job tenure	-0.011	-4.00***	-0.011	-3.91***	-0.009	-3.11***	-0.008	-2.94***
Job tenure (squared)	0.001	4.64***	0.001	4.52***	4.9E-4	3.04***	4.4E-4	2.82***
<i>Construction sector (ref.) <sup>a</sup></i>								
Industrial sector <sup>a</sup>	0.001	0.09	0.001	0.10	-0.013	-1.10	-0.014	-1.13
Services sector <sup>a</sup>	-0.041	-3.30***	-0.041	-3.28***	-0.005	-0.48	-0.005	-0.48
<b>Log likelihood</b>	-3,290.5		-3,283.8		-2,512.7		-2,504.2	

Notes: Country dummies are included in all regressions.

<sup>a</sup> Dummy variable

\*  $0.10 > p \geq 0.05$ ; \*\*  $0.05 > p \geq 0.01$ ; \*\*\*  $p < 0.01$

Source: Authors' calculations.