# EMPLOYMENT PROTECTION AND JOB SECURITY REGULATIONS IN EUROPE: DO THEY SUPPRESS EMPLOYMENT?

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# Abstract

Inspired by the 1994 OECD Jobs Strategy claiming for labor market flexibilization reforms to promote employment, the following paper attempts to answer the question what effect employment protection and job security provisions have on the employment rate. Using aggregate panel data from 18 member states of the European Union for the period 2000-2008 to run a simple reduced-form regression model which follows Nicoletti and Scarpetta (2001), I find that employment protection measured with the OECD summary index has on average a small, but positive effect on the overall employment rate. However, the effect of employment protection on overall employment is conditional upon the generosity of unemployment benefits and becomes negative in environments with generous unemployment benefits. Nevertheless, there remains some doubt concerning the actual causality and a potential endogeneity of employment protection.

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# **1. INTRODUCTION**

It was in the light of especially high unemployment and low employment rates that the OECD in 1994 formulated its much-regarded Jobs Strategy, which, amongst others, insistently called for an institutional flexibilization of labor markets in order to tackle unemployment and promote employment. Part of that was the recommendation to reduce the degree of employment protection, legal provisions that impose restrictions and duties on employers regarding hirings and dismissals, such as statutory severance payments, restrictions on the use of fixed-term contracts or rules regarding collective dismissals. Since then, most countries in Europe have incrementally lowered the strictness of their employment protection legislation. However, especially in Europe many labor markets still suffer from substantial unemployment, what is sometimes being referred to as the new Eurosclerosis. Acknowledging that the OECD recommendation to lower employment, this paper is going to empirically assess the effect of employment protection legislation, EPL in the following, on employment in several member states of the European Union.

A number of studies tried to explore the link between employment protection and labor market performance. The overall picture, however, remains inconclusive. Whereas some of the cross-country studies, such as the ones by Lazear (1990) Heckman and Pagés (2000), Nickell and Layard (1999) identify a negative effect on the employment or a positive on the unemployment rate, like Garibaldi and Mauro (2002) or Di Tella and MacCulloch (2005). The OECD (1999b) finds that EPL increases youth unemployment, whereas it has positive effects on the employment rate of prime-age males, with the overall effect remaining uncertain. There are effects of EPL on which empirical research is less ambiguous. It is broadly confirmed that employment protection dampens the employment turnover rate by reducing the number of hirings as well as the number of dismissals. Furthermore EPL seems to promote alternative forms of employment as well as self-employment which are not subject to the restrictions. However, since the findings concerning the effect on employment are disturbingly inconclusive, not significant or not robust, but at the same time of primary importance for European labor market reforms, this paper investigates employment effects related to employment protection legislation. In addition to that and in acknowledgement of possible interactions with other labor market institutions I will extend the empirical analysis by looking at the effect of EPL on employment in different settings of unemployment benefit generosity.

The central question is not only what the overall effect of EPL on employment is, but also to which degree this effect differs across EU member states. Taking into account the vastly heterogenous nature of European labor markets regarding labor force and labor market institutions or features such as the degree of wage bargaining coordination, social benefit generosity, union density, the existence and level of binding minimum wages or the labor tax wedge, it shouldn't simply be assumed that the effect of EPL is equal in direction or size in all EU member states. This is an especially central question for policymakers, whether or under which conditions experiences derived from one country are transferable and the results of reforms reproducible in another country.

To follow these questions I will use aggregate quarterly data for 18 European countries for the years 2000-2008 taken mainly from the OECD and Eurostat statistical databases and set up a simple reduced-form regression model similar to the one proposed by Nicoletti and Scarpetta (2001) which allows me to estimate the overall average effect of EPL on employment. In addition to that, the inclusion of an interaction term of EPL and unemployment benefit generosity will indicate whether the effect of EPL is likely to be conditional upon the unemployment benefit generosity. Using micro data would admittedly be prefrable, but due to the restricted availability and reduced comparability this turns out not to be an option for the country and time selection.

The paper is structured as follows: in chapter 2 I will give an overview of the economic theory in connection with EPL. After presenting the rationale of providing employment protection in general and in the form of statutory provisions, I will describe a hypothetical case formulated by Lazear (1990) in which EPL has no effects on employment, profit of firms and welfare. Incrementally relaxing the assumptions made in that case the possible effects of EPL on employment and unemployment, on labor productivity and the composition of employment will be discussed. Finally, the theoretical effects will be summarized in 2.2.5 in order to conclude the chapter. Chapter 3 will, after presenting the OECD EPL strictness summary index and how it is calculated, describe the current state and strictness of employment protection in certain member states of the European Union and the development since the year 2000 using the OECD index. Chapter 4 starts with on overview of employment rates and trends, presents the econometric model as well as its variables and the data used in more detail. Section 4.4 will present and discuss the results obtained from the estimations, before in 4.5 I attempt to critically reflect on the methodology applied. Chapter 5 will discuss policy implications of the findings before in chapter 6 the research will be concluded.

# 2. EPL IN THEORY AND EMPIRICAL EVIDENCE

In the following chapter I will give an overview of what is being called employment protection legislation, EPL, and shed light on the purpose of providing employment protection in the legislation as well as show which possible effects EPL may have on labor markets. For this I will present a hypothetical case formulated by Lazear (1990) in which EPL does not affect employment, profits of firms and welfare and by incrementally relaxing its stark assumptions show its multiple possible effects in theory. At the same time the respective empirical research will be revised in order to answer the question whether or to which degree the theoretical predictions can be confirmed by existing research.

The term employment protection legislation refers to a set of regulations and legal provisions designed to protect (risk-averse) employees from the risk of becoming unexpectedly unemployed as well as from types of employment which do not provide an employee with a certain degree of planning reliability. Although there have been numerous attempts to develop alternative indicators of the strictness of EPL, as advocated by Bertola and Boeri (2008), the OECD EPL indicator is the index which is most used in the respective research to measure the overall and partial strictness of national employment protections legislations in OECD countries. Even though it bears certain disadvantages and needed to be adapted to new working realities, it is the measure of EPL strictness on which this analysis and the consequent research are based. It covers the legislative regulation under regular work contracts<sup>1</sup>, fixed-term contracts as well as concerning the collective dismissal of employees.<sup>2</sup>

Besides this functional division, Boeri (2008) distinguishes employment protection regulations according to the kind of cost they mean to an employer in question: The transfer component refers to the employer's ability to anticipate the imposed restrictions through the

<sup>&</sup>lt;sup>1</sup> According to the OECD terminology, the term regular contract refers to a "classical" employment contract entered by a firm and an employee for an infinite period of time.

 $<sup>^{2}</sup>$  A more detailed description of the composition of the index is provided in section 3.1.

labor contract. In the case of severance payments, employers may be aware of the present value of the future cost and internalize this information in the offered wage, if wages are freely adjustable. The worker, on the other hand, could then regard the reduced wage as the price for an insurance mitigating the risk of job loss. Since an employer anticipates the future cost through the offered wage and an employee accepts the present lower wage in the light of the reduced risk of job loss or its mitigation, this does not affect equilibrium employment<sup>3</sup>. This is different when the future costs imposed to employers cannot be foreseen and thus neither be anticipated by the labor contract design, as it is the case with judicial compensation mandating or comprehensive staff association negotiations, for instance. This tax-component may finally result in significant market distortions. However, the stark and unrealistic assumption of fully flexible wages regarding the transfer component of EPL as well as whether this is in reality clearly distinguishable from the tax component make Boeri's way of viewing EPL less useful for the purpose of this research.

In the subsequent section I provide a summary of the most relevant theoretical considerations concerning EPL and thereby also follow the question whether previous research was able to empirically verify or falsify the mentioned.

# 2.1 The Rationale of providing Employment Protection Legislation

There are multiple reasons to provide employment protection through legislation rather than to let it be part of individually negotiated employment contracts. The objectives of EPL aim at overcoming market failures that might occur if EPL was privately provided in the form of

<sup>&</sup>lt;sup>3</sup> A similar point is being made by Lazear (1990, p.724): "Those that believe that state intervention in labor markets is harmful and is likely to cause unemployment and other distortions tend to believe that markets function quite well. But in a perfect world any mandated transfer from employer to worker can be undone by an efficient contract. The result is that severance pay legislation and requirements that employers give notice have *no effect in a perfect economy.*" However, he is aware of the stark assumptions underlying this view: "While this may be an interesting theoretical point, few believe that government intervention into labor markets has no *effects.*"

employment protection insurance contracts, at the enhancement of human capital and also follow individual and collective social considerations.

The main argument for providing protection legislation concentrates on the relatively weak role of employees in employment relationships, especially during times of high nonstructural unemployment, in which employers find themselves in a favorable recruiting and hiring situation. In this regard, EPL is intended to serve as an unemployment insurance for individuals that typically lack the endowment to receive sufficient income from capital in order to finance their living and that of their families. Since the provider of such an insurance may have difficulties in monitoring an employee's behavior and employees may tend to shirk and take the risk of being dismissed in the presence of such an insurance, it is not possible to provide an effective private employment insurance at reasonable prices. Furthermore, besides the so-called risk of moral hazard, adverse selection by the insurance provider contributes to the impossibility of non-statutory employment protection. This means that insurance providers would try to hire only the most productive individuals that are unlikely to be subject to dismissals in case of an external demand shock and would refuse to accept older or seemingly less productive individuals, which would in the end result in an insurance for those that are the least likely to need it excluding all others who eventually would experience a dismissal. Consequently, due to the probability of careless behaviour of the insured (moral hazard) and the attempt of the insurance provider to only accept those individuals for whom the incidence of the insured event, a dismissal due to low productivity in this case, is the lowest (adverse selection), private employment insurance cannot replace statutory employment protection.

In addition to providing an employment insurance, EPL also strengthens the bargaining power of otherwise relatively weak employees towards an employer. Long and stable employment relationships may furthermore induce employers as well as employees, to spend more on human capital investment, likely in the form of on-the-job training. Employers

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would benefit from a stronger commitment of employees to their job and the resulting motivation to acquire firm-specific skills which become useless once they change the employer. Finally, society as a whole may prefer stable and reliable employment relationships, which may relief the social and welfare system from fluctuations in employment which would otherwise follow external shocks. Table 1 summarizes the mentioned objectives of EPL according to the respective target group.

Regardless of the intended outcomes of EPL, economic theory offers a variety of possible, partially unintended, results of which some are rooted in the nature of EPL, whereas others turn out to be consequence of a certain design of the set of regulations or their degree of universal applicability. In the following sections the most important of these possible outcomes will be presented and it will be examined to which extent available empirical evidence is able to verify or falsify the theoretical predictions.

**Table 1: Objectives of employment protection** 

Employees	Employers	Society
Induce more OJT and HC investment by the employer	Increase workers' willingness to acquire firm-specific skills, productivity increases?	Increase overall HC investments
Insurance against unexpected or sudden job loss through no fault of their own		Reducing employment fluctuation, thus relieving social welfare systems
Strengthening bargaining position		
Increase welfare (if wages downwards not fully flexible)		

### 2.2 Possible Effects of EPL on the Labor Market

#### 2.2.1 The "neutrality case" (Boeri 2008, p.204)

Under some special assumptions, namely downwards fully flexible wages, risk-neutrality of employees and foreseeable cost in the case of a dismissal, i.e. what Boeri calls transfer component, EPL does not affect employment, profits and welfare. Employers would then adjust offered wages in such way that the present value of future earnings of employees and mandated transfers like severance payments equals the present value of (higher) future earnings without mandated transfers and compensation in the case of a dismissal. If the future cost of any dismissal is known by the employer and if wages are adjustable accordingly, meaning that the cost of EPL can be fully internalized in employment contracts, then employers will be indifferent between hiring with or without mandated transfers.<sup>4</sup> Since riskneutral employees only decide about which job to take according to the discounted present value of future income, which would be equal under the mentioned circumstances, neither the behavior of employees nor of employees would change if the employment contract was designed accordingly. Figure 1 shows the connectedness of the wage level with mandated transfers in this case: n stands for the employment duration, a is the fraction of the employment duration which is to be paid as severance payment in form of monthly/annual salary<sup>5</sup> and  $w_0$  is the initial wage level without legislative obligations of the employer. Without EPL an employer pays a wage of  $w_0$  for the duration of the employment relationship  $t_n$ , this cost is being represented in the grey shaded area. If then there is a legislative change obliging the employer to compensate an employee in case of a dismissal with a severance payment and if this is known to the employer and does not affect the labor productivity of the employee, taking into account the future cost for firing compensation, the initially offered

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<sup>&</sup>lt;sup>4</sup> Severance payments as part of EPL obligations can also be conceptualized as a contract for an unemployment insurance in addition to the employment contract itself, where the insurance premium is actually represented by the wage reduction that occurs as a consequence of the mandated dismissal compensation. Pissarides (2001, p. 156) tries to give an answer to the question, why severance payments are mandated and not part of the individually entered employment contracts and assumes, "that the firm will have incentives to default on its *obligations and terminate the contract without compensating the workers*" and follows that "legislation can provide a cheaper alterna*tive of enforcing rules that would be optimal in private contracts*." This argument complements the arguments in favor of providing EPL listed in 2.1 and may benefit all three groups involved: employers, employees and society.

<sup>&</sup>lt;sup>5</sup> In most of the national legislations, the amount of the severance payment is not independent from the duration of the actual employment. Although usually the mandated amount of compensation is progressive, meaning that older or more experienced workers are entitled to receive more severance payment relative to the tenure of the employment than less experienced or younger ones, for the sake of simplicity in the illustration it is assumed that each employee receives the same fraction of their employment tenure, expressed by the term a. Skipping this assumption would, however, not change the intuition of the illustration.

wage will drop to  $w_0 - \frac{aw_0}{\left(1+r\right)^n}$ , which is the equilibrium wage level,  $w_1$  in the

following, in presence of mandated dismissal compensation. The personal discount rate is expressed by r. The dashed red items in the illustration represent the three above mentioned assumptions under which this neutrality result<sup>6</sup> may occur. If the horizontal line was a binding minimum wage, the compensation was not to be set off by a properly designed contract between employer and employee, only if the wage floor was below  $w_1$  the wage and hiring decisions would not be affected. In addition to that, the same line may represent the second assumption. It is important to note that an individual will only accept the lower wage in case of mandated severance pay if the following condition applies.

$$\sum_{i=0}^{n} w_{1} + \frac{w_{1}}{(1+r)} + \frac{w_{1}}{(1+r)^{2}} + \dots + \frac{w_{1}}{(1+r)^{n}} + \frac{anw_{1}}{(1+r)^{n+1}} = \sum_{i=0}^{n} w_{0} + \frac{w_{0}}{(1+r)} + \frac{w_{0}}{(1+r)^{2}} + \dots + \frac{w_{0}}{(1+r)^{n}} + \frac{w_{0}}{(1+r)^{n}}$$

The discount factor r obtained from this necessary condition is exactly the one at which an individual can be considered as risk-neutral. If the individual was risk-averse, its discount factor would exceed r and it would obtain higher personal utility with the initial higher wage and without severance payment. Graphically this is represented by an upward shift of the horizontal dashed line, the wage demanded by a worker is then higher than the one a firm is able to offer under mandated severance payment provisions, meaning that no employment relationship is entered.

The vertical, dashed-line bar represents a breach of the third assumption. If EPL does not only consist of a transfer, but also of a tax component whose cost cannot be properly estimated by the employer beforehand, the future cost of EPL cannot be properly assessed and anticipated through wage reductions in the employment contract.

<sup>&</sup>lt;sup>6</sup> As indicated in the beginning of the section, I am borrowing this term from Boeri (2008).

#### Figure 1: The neutrality case



If only one of these assumptions, formulated by Lazear (1990), does not apply, then effects of EPL on profits, welfare and employment cannot be precluded. Another assumption I have made above is that a, which determines the number of monthly salaries as a fraction of the total employment tenure, is a constant and does not vary upon the tenure of an employee with an employer. Although this is not mentioned neither by Lazear (1990) nor by Boeri (2008), this assumption is crucial in this case: If a was not a constant but would vary according to the actual employment tenure, as it is the case in most European states, an employer would need to know the exact duration of an employment relationship when hiring, otherwise it would not be possible to deduct the corresponding amount from the wage offered.

Together with the other three stark assumptions, the neutrality case is not much more than a purely theoretical and rather artificial case, but, agreeing with Boeri (2008) that "it is sufficient to relax any of these [...] assumptions to have some effects on [sic!] EPL on labor *allocation*", it provides a welcome starting point to assess the possible consequences of EPL on labor markets. Consequently, in the following section I will incrementally relax the assumptions made so far in order to shed light on other possible effects of EPL. At the same time, the question will be followed to which extent empirical research confirms or refutes the theoretical predictions.

#### 2.2.2 EPL and employment stocks and flows: if future cost of EPL cannot be anticipated

The standard approach to assessing the effects of EPL in theory is a dynamic model of labor demand, in which wages are assumed to be exogenously given and competitively determined. This is a relaxation of only the first Lazear assumption that wages are fully flexible. Labor is still being considered as a homogenous factor of production and productivity is also assumed to be exogenously determined. EPL can be considered as a mere firing cost which may incorporate the severance payment as well as other quantifiable cost from the various administrative regulations and burdens it includes.

Since the firing cost imposed by EPL does assumedly not affect the marginal productivity of labor, laying off workers due to an exogenous shift in demand will finally reduce a firm's profits. This is the consequence of exogenously determined wages which prevent employers from anticipating the future cost of a dismissal, even if the respective regulations do not reflect a tax component as has been described above. In the light of firing costs it might be optimal not to dismiss employees, even if wages exceed marginal productivity. If a firm does not have the ability to anticipate any of the imposed cost, this will likely result in more reluctance in hiring as well.<sup>7</sup> Thus, under these assumptions EPL will reduce or smooth employment fluctuation. The effect on levels and changes of employment and unemployment, however, is much more ambigious. The question here is which effect dominates, discouraged hirings in the light of strict and expensive dismissal regulations or the

<sup>&</sup>lt;sup>7</sup> Hamermesh (1993) also points to the fact that this consequently may hinder the establishment of new firms or result in the exit of existing ones. Strict employment protection could also result in an increased number of closing firms: "By adding to the costs of staying in business, though, the restrictions also increase the likelihood of plant closing in response to negative shocks to product demand or to other positive shocks to labor costs. As long as the employer is not liable if the plant is closed, and as long as the restrictions do not apply if it is sold, *they imply a [...] reduction in adjustment costs for a sufficiently large cut in employment [...]. They thus increase the death rate of [...] firms and plants.*" (Hamermesh 1993, p. 318)

difficulty of actual dismissal which may prevent many employees in question from becoming unemployed. Insofar EPL increases not only the cost of adjustment of the labor stock, but is a fixed cost of labor itself, there would additionally be a scale effect: through the higher cost of labor at least in the short run, in which no substitution is possible, production costs would increase. The resulting price increases at the product market would then suppress demand and production. If this effect exceeds a certain threshold, even if the light of strict employment protection reducing the stock of labor might be inevitable, which would reduce employment as long as this is not counteracted with feasible instruments such as short-time work.<sup>8</sup> The theory does so far not allow for any general conclusion about the direction of the effects on employment. Without knowledge of the respective elasticities of labor demand, its volatility as well as the discount factor, the theory is not able to predict the overall direction of the effect on employment. To assess the concrete direction of the effect of EPL on employment is thus left to empirical research, what will be done in chapter 4.

The evidence provided by economic research, especially in cross-country studies, is vastly ambigious. The work of Heckman and Pages (2000), using household-level data from Latin American countries, seems to support the traditional view which gained importance especially through the 1994 OECD Jobs Study (OECD 1994). They find a large negative impact (especially on the youth) employment level, similar to the results of Nickell and Layard (1999) or Lazear (1990), who for the United States finds out that introducing a three-month mandatory severance payment would lower the employment-to-population ratio by one percent or increase unemployment by even 5.5 percent. Blanchard and Wolfers (2000) do also find a significant and positive effect on unemployment and argue the increased equilibrium unemployment rate was the consequence of lower job search intensity and wage bargaining structures. However, they also mention the possibility of a reverse causality, that in times of

<sup>&</sup>lt;sup>8</sup> Short-time work would result in lower employment measured in hours, whereas the employment rate itself would not be affected by it.

high unemployment or high unemployment growth it may seem politically feasible to rise EPL strictness in order to dampen the effects of external shocks on the labor market.<sup>9</sup>

Instead of looking at levels, Garibaldi and Mauro (2002) focus on employment growth. They argue that labor market institutions and employment growth are linked through immigration on the one hand and productivity growth, leading to higher levels of employment growth, on the other. However, they admit, economic growth may also negatively affect employment growth if it causes adaptation processes which in fact may make existing jobs redundant. Although the found negative effect of EPL on employment growth is highly significant, the use of EPL averages with very little time variation as well as the small sample size may well be criticized. Using business survey data from 21 OECD countries for the years 1984-1990 Di Tella and MacCulloch (2005) also support the view that EPL increases the unemployment, suppresses emplyment as well as the labor force participation rate. It is left to be mentioned that quite a number of studies investigating the consequences of employment protection and job security regulations, be it due to the restricted availability for certain years and non-OECD countries, do not use the OECD EPL index, but alternative measures, like Nickell and Layard (1999), Nickell et al. (2005), Allard (2005) or Blanchard and Wolfers (2000). Avdagic (2012) exploits a database which contains changes in the legislation and from this database herself calculates the EPL index according to the methods and standards applied by the OECD. Although this does not apply to the overall employment rate, the

<sup>&</sup>lt;sup>9</sup> This is an interesting aspect which probably hints at an asymmetry of employment and unemployment in response to EPL. It is conceivable that legislative action does rather react to unemployment stocks and flows than to changes in the level or growth of employment. Being a neglected aspect in the existing literature and research, the question whether unemployment and employment symmetrically react to EPL, however, is a legitimate one, indeed. Not only the implementation of new legislation may be affected by underlying economic conditions, but, as Boeri (2008) argues, the application through judges may vary substantially according to the perception of the state of the labor market. Another likely difference is emphasized by Lazear (1990): In contrast to employment, unemployment is not a useful concept when it comes to EPL, since individuals discouraged from not finding a job, probably as a result of strict EPL, may stop searching and drop out of the labor force, which would ceteris paribus reduce the unemployment rate. From this I follow, that, as it is being done by Di Tella and MacCulloch (2005), unemployment as the decisive dependent variable needs to be complemented by the labor force participation in order to prevent spurious results.

OECD (1999b) found out that employment protection indeed raises employment among prime-age males, whereas it negatively affects youth and female employment.

#### 2.2.3 EPL and productivity: if EPL affects the productivity of labor

One may well raise the question whether productivity of workers is likely to be independent from employment protection. A high degree of job security may induce shirking among employees. To the degree that the employer can either not observe the actual productivity differentials or this is not considered as a sufficient reason for a self-inflicted dismissal by the legislation or the legal practice, this might eventually cause productivity falls below its potential. More general, for which reason ever marginal productivity falls below the wage level, in such a case maintaining the employment relationship may turn out as the cheaper alternative to a firm than bearing the cost and administrative procedures in case of a dismissal, reducing overall productivity by slowing down reallocation of labor. In addition to that, to the degree that EPL strengthens the bargaining power of workers and this results in higher wages, it will also negatively affect productivity of labor.

On the other hand, there are also arguments for a productivity increase caused by EPL. The perspective of a stable and long employment relationship may increase workers' cooperation and willingness to take advantage from firm-specific training. The employee investment in the development of firm-specific skills, which becomes useless once the employer is changed, makes a termination through the employee less likely and may in turn provide an incentive to the employer to offer more training. Both the increased cooperation and willingness to take part in firm-specific extension of skills of the workers as well as the tendency of the employers to offer more training may cause a rise in productivity. Storm and Naastepad (2007) show in a cross-country study of OECD countries from 1984-1997 that through these mechanisms EPL may promote labor productivity growth in the long run.

Young (2003) adds that firing restrictions or cost may also induce employers to optimize their HR management and thus have a positive effect on productivity.<sup>10</sup>

There is only little evidence on the question whether EPL affects levels of labor productivity. Nickell and Layard (1999) find a positive, but insignificant relationship between EPL strictness and productivity, whereas Scarpetta et al. (2002), using micro data from ten OECD countries, find a negative effect on total factor productivity in countries with an intermediate degree of centralized wage bargaining and coordination. This is attributed to the fact that wages were often not adapted to EPL strictness accordingly and that it presented an obstacle for small firms to enter the market. Not restricting themselves to labor productivity, in a study that takes advantage from firm-level data Dougherty et al. (2011) find that the total factor productivity differential between states with stringent employment protection and states with more liberal legislations is up to 14% in India, part of which is being attributed to labor productivity increases.

#### 2.2.4 EPL and employment composition: if labor is not homogenous

In the following section it will be discussed which consequences EPL might have on the distribution of labor once the assumption of a homogenous labor force is being relaxed. What is widely acknowledged in the literature and unambiguously confirmed in research is that strong EPL smoothes employment fluctuation, increasing the average duration of employment as well as unemployment. In countries with higher male than female employment this benefits mainly prime-age males, whereas it may discriminate females by preventing them from entering a regular employment relationship. This aspect can also be stated in more general terms: groups with lower participation or employment rates may be hindered by an increased hiring reluctance without being able to benefit from firing restrictions. The OECD (2004) also

<sup>&</sup>lt;sup>10</sup> Young (2003) attributes this argument to an earlier version of Nickell et al. (2005) from the year 2002. However, having reviewed these contributions, I cannot confirm this reference, which is why I explicitly refer to Young (2003) who may not be the first having mentioned this aspect.

provides statistically significant evidence on the adverse effects EPL may have on some socio-demographic groups, mainly females and youth. This is due to the fact that these groups can hardly prove their productivity and abilities. The otherways (if there were no restrictions and costs of a dismissal) usual way of hiring and then monitoring their productivity would likely turn out to be too risky and expensive for an employer who is taken the possibility to dismiss a worker in case their productivity turns out to be too low. Heckman an Pagés (2000) as well as Addison and Teixeira (2001) find a negative and significant effect of EPL especially on youth unemployment, whereas others, such as Noelke (2011) challenge this view.<sup>11</sup> Although existing evidence on this question remains overall inconclusive, the theoretical possibility of such employment composition effects must not be neglected.

EPL may not only affect the socio-demographic composition, but also the nature of employment relationships itself. EPL typically provides different sets of regulation to different types of employment, which provides an incentive for employers to circumvent stricter regulation by offering types of employment which are less regulated, such as temporary work. The question to which degree this kind of circumventing legislative requirements is legitimate, is a normative one and needs to be addressed by each country and society individually. However, policymakers need to account for the existence of circumvention strategies that may result in an increased deployment of temporary work agencies, self-employment or any other kind of employment which is not or to a lesser extent covered by strict EPL. Lazear (1990) supports this argument by finding that in the United States the introduction of mandatory severance payment would convert about nine million jobs from regular into part-time ones.

Finally, in countries with a relatively well accessible shadow labor market it is conceivable that under stricter protection employers may seek a higher degree of undeclared

<sup>&</sup>lt;sup>11</sup> For a comprehensive overview of the recent research of the effects of EPL on youth (un-)employment, see ILO (2012).

employment, whereas employees may prefer official employment contracts which are subject to enforceable employment protection. In this case, EPL could lead to a wedge in wages paid for shadow and official employment.

### 2.2.5 Summary: EPL and its possible effects

The previous discussion of theoretical effects of employment protection legislation as well as a review of a part of the relevant empirical evidence available at this point reinforces the claim for further economic research. The following table shall provide an overview of the possible effects of EPL and the respective evidence. Of course it can only offer an overview of some of the respective literature and research results.

	<u>Theory</u>	<u>evidence</u>
<u>Employment</u>	<ul> <li>dismissal reluctance</li> <li>increased supply of labor in case an alternative employment was to be found in an unregulated shadow labor market</li> </ul>	OECD (1999b): for prime-age males
	<ul> <li>lower job search intensity</li> <li>increased bargaining power</li> <li>higher fixed cost of adjustment of labor stock</li> </ul>	Heckman and Pages (2000) Di Tella and MacCulloch (2005) Lazear (1990) Garibaldi and Mauro (2002): growth rates
<u>unemployment</u>	<ul> <li>lower job search intensity</li> <li>increased bargaining power</li> <li>reverse causality: increase EPL in times of high unempl. growth?</li> </ul>	Lazear (1990) Blanchard and Wolfers (2000) Di Tella and MacCulloch (2005)
	<ul> <li>demotivated job searchers drop out of LF</li> <li>dismissal reluctance</li> </ul>	Nickell, Nunziata and Ochel (2005)
<u>Productivity</u>	<ul> <li>more training offered by employer</li> <li>more training accepted by Employee</li> <li>firing costs may lead to optimized HR management</li> </ul>	Nickell and Layard (1999): insign. Storm and Naastepad (2007): growth rates in the long run
	<ul> <li>shirking</li> <li>prevented adjustment of the stock of labor</li> <li>bargaining power leads to higher wages at unchanged productivity of labor</li> </ul>	Scarpetta et al. (2002) and Dougherty et al. (2011): total factor productivity
employment composition	<ul> <li>less regular full-time employment, other forms of employment exempt from EPL</li> <li>lower youth/female employment</li> </ul>	OECD (2004), Heckman and Pages (2000) and Addison and Teixeira (2001): lower youth employment, challenged by Noelke (2011); Lazear (1990): higher part-time employment

Table 2	EPL	in	theory	and	em	nirical	evidence
I abit 2		111	uncor y	anu	un	pnicai	<i>c</i> viucnee

What has not been mentioned so far is the question of causality: Even if there was a correlation between certain measures of labor market performance and outcomes, this does not necessarily mean that EPL is the cause for labor market outcomes. It is not implausible that, was there a positive relationship between EPL and unemployment, EPL strictness could actually be the result of high unemployment, since it might be viewed as a proper instrument to stop unemployment from further rising in the aftermath of an external demand shock. It is even more likely that unemployment and EPL reinforce each other: if EPL is not strict enough to prevent dismissals which raise unemployment, it might be increased and as a consequence of this employers may be more reluctant with new hirings, which would further raise unemployment and probably be a vicious circle. Furthermore, EPL might also be endogenous with respect to other labor market institutions such as union density. If unions are strong and have much bargaining power they may push for stricter employment protection. Another relationship might exist between EPL and economic growth; if EPL negatively affects labor productivity this may influence GDP growth rates and lower employment. In that case an empirical assessment of the effect of EPL on employment may deliver spurious results.

The following chapter deals with the measurement of employment protection strictness as well as the current state of EPL in Europe, before in chapter 4 the question of a connection between EPL and employment will be assessed.

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# **3. THE STATE OF EPL IN EUROPE**

This chapter is divided into two parts: The first part is dedicated to a detailed description of the OECD summary index of employment protection strictness, which will be used in the subsequent empirical analysis. The second part of the chapter attempts to give an overview of the current state of employment protection legislation measured by the OECD index in those European countries that are included in the sample as well as the changes in legislative strictness that happened since the year 2000.

# 3.1 The OECD Summary Index of Employment Protection Strictness

The OECD EPL strictness summary index has been developed by the OECD in cooperation with the International Labour Organisation in order to classify the national legislations to recognize trends and to facilitate cross-country comparisons. Currently, there are three different versions of the index available. They differ in the way that they incorporate different information and cover different periods. The index is being calculated on an annual basis, version 1 is available for the time period 1985-2008, version 2 for 1998-2008 and version 3 has been provided from the year 2008 onwards. Table 3 shows in detail which parts of the legislation are assessed to calculate the index.<sup>12</sup> The three versions of the index differ in the weight they attribute to the subcategories. The items marked with an asterisk in the table are not contained in the version 1 of the index which is being used in the empirical analysis of this paper. Problematic about the index is that, whereas some of the items can be assessed objectively with the help of a fixed rule, others suffer from a certain degree of subjectivity. This then leads to different results even when calculating the index according to the OECD methodology.

<sup>&</sup>lt;sup>12</sup> The table is a simplified form of the complete calculation methodology guidelines published by the OECD as it is to be found in the appendix.

Table 5. Items of the OLCD EI		
<b>Regular employment</b>	<b>Temporary contracts</b>	Collective dismissals
contracts		
<pre>contracts procedural inconveniences      notification procedures     delay to start a notice  notice and severance pay for individ. dismissals      notice period     severance pay  difficulty of dismissal      definition of unfair     dismissal     trial period     compensation     reinstatement     reinstatement </pre>	<ul> <li>fixed term contracts</li> <li>valid cases</li> <li>max. successive number</li> <li>max. cumulated duration</li> <li>temporary work agency employment<sup>13</sup></li> <li>types of work</li> <li>number of renewals</li> <li>max. cumulated duration</li> <li>authorization and reporting*</li> <li>equal treatment*</li> </ul>	<ul> <li>definition of collective dismissal</li> <li>additional:         <ul> <li>notification requirements</li> <li>delays involved</li> <li>costs to employer</li> </ul> </li> </ul>
max, une for claim		

Table 3: Items of the OECD EPL index

## 3.2 The State of EPL in Europe

A look at the present and past legislation reveals two main features of EPL in Europe<sup>14</sup>: first, the states in Europe differ significantly in the degree of strictness applied to employment relationships. Second, according to version 1 of the OECD EPL index<sup>15</sup> the legislation is more strict in most member states than in the OECD countries on average.

CEU eTD Collection

<sup>&</sup>lt;sup>13</sup> The difference between a fixed-term contract and the use of a temporary work agency is that in the latter case the final employer enters a contract with a temporary work agency (and not with an individual), which itself has a contract an employee which will then be borrowed. In this case, the employee is instructed and compensated by the temporary work agency and not by the final employer he or she is working for. From this it may result that the legal status of the employee differs substantially from employees under regular contracts as well as from those who work under fixed-term contracts.

<sup>&</sup>lt;sup>14</sup> In the following I will focus on those countries that are included in the data sample in the empirical part of the research. These are all EU member states with exception of Latvia, Lithuania, Malta, Cyprus, Romania and Bulgaria, for which the OECD does not calculate and publish the EPL strictness index, since these are not OECD member countries. Furthermore, data on EPL strictness is very much restricted in the EU and OECD member states Luxemburg, Estonia and Slovenia, which is why these are exempt from the description and in the following from the sample as well.

<sup>&</sup>lt;sup>15</sup> Although Luxembourg is not included in the following analysis due to reduced data availability, it is noteworthy that in 2008 it has the strictest employment protection regulation (3.25) of all European countries for which the OECD EPL index is provided.

The highest degree of protection<sup>16</sup> is found in Southern Europe: Portugal (3.15), France (3.05), Spain (2.98) and Greece (2.73), which is consistent with the general view that the labor markets in Southern EU member states provide for more regulation and less flexibility. The only exception is Italy (1.89) which ranges among the less restrictive, but not extremely liberalized labor markets of Finland and the Czech Republic (1.96), the Netherlands (1.95), Austria (1.93), Poland (1.90) and Sweden (1.87). Hungary (1.65) and Denmark and Slovakia (1.50) apply a less strict regulation, in the degree of liberalization only preceded by the Anglo-Saxon countries Ireland (1.1) and United Kingdom (0.75). Strikingly, in the former socialist Visegrad-4 states Czech Republic (1.96), Hungary (1.65), Poland (1.9) and Slovakia (1.44) EPL are lower-than-average, although the changes in EPL from 2000 to 2008 seem not to indicate a common trend among them.

Since 2000 there have been numerous amendments to the legislation and thus some variation in the national EPL indices over time. However, this does not dramatically change the picture of restrictive Southern European labor markets, more moderate but higher-than-OECD-average legislation in some of the Western European states and relatively high degree of liberalization in the V-4, but especially in the Anglo-Saxon countries, which is suggested by the rankings according to EPL strictness in 2000 and 2008. Regarding the relative strictness of regulations it turns out that EPL became relatively stricter especially in Belgium, Czech Republic, Poland, Hungary and France, whereas it became relatively more liberal mainly in Italy, Sweden, Slovakia, Austria and Greece.

In general there seems to be a tendency towards liberalization: Out of the 18 countries viewed, only six of them have increased employment protection over the 2000-2008 period<sup>17</sup>, whereas ten countries lowered the strictness of their legislations and in Belgium and Denmark

<sup>&</sup>lt;sup>16</sup> If not stated differently, the reference year is 2008. EPL index version 1 is reported in brackets.

<sup>&</sup>lt;sup>17</sup> These are France, Czech Republic, Poland, Hungary, Ireland and the United Kingdom.

no changes occurred during that period.<sup>18</sup> Table 4 provides more detailed information on the EPL index and its changes for the countries in view.

rank	country	EPL v.1	rank	Country	EPL v.1	change in	abs.
2000			2008			rank	change in
							EPL
1.	Portugal	3.67	1.	Portugal	3.15	-	
2.	Greece	3.56	2.	France	3.05	12	1
3.	Spain	3.05	3.	Spain	2.98	-	
4.	France	2.98	4.	Greece	2.73	<b>1</b> 2	
5.	Italy	2.51	5.	Belgium	2.18	<b>1</b> 4	-
6.	Germany	2.34	6.	Germany	2.12	-	
7.	Sweden	2.24	7.	Finland	1.96	<b>1</b> 4	
8.	Austria	2.21	8.	Czech Rep.	1.96	<b>1</b> 4	1
9.	Belgium	2.18	9.	Netherlands	1.95	1	
10.	Netherlands	2.12	10.	Austria	1.93	2	
11.	Finland	2.09	11.	Poland	1.90	1 4	Î
12.	Czech Republic	1.90	12.	Italy	1.89	7	
13.	Slovakia	1.80	13.	Sweden	1.87	<b>1</b> 6	
14.	Denmark	1.50	14.	Hungary	1.65	$\dot{\uparrow} 2$	Î
15.	Poland	1.40	15.	Denmark	1.50	1	-
16.	Hungary	1.27	16.	Slovakia	1.50	1	
17.	Ireland	0.93	17.	Ireland	1.10	-	1
18.	UK	0.68	18.	UK	0.75	-	

Table 4: Rank of EPL strictness in the EU

#### Figure 2: EPL in the EU 2000

#### Figure 3: EPL in the EU 2008



<sup>&</sup>lt;sup>18</sup> It might not be appropriate to presume a convergence, but the differences between the strictest and the least strict employment protection have become smaller over the period. Amongst others, this could indicate a convergence or increasing harmonization of national legislation in the light of the EU integration process and increasing competition of the states on the European Single Market. Although this may have influenced national legislations, it is unlikely to be the only explanation, ignoring global trends and general changes in the era of globalization. Besides that it is highly questionable whether the European labor markets are interconnected and pervious enough to promote competition apart from attracting foreign investments. Language, cultural and remaining prevalent institutional barriers as well as differences in exposure to external shocks may still provide sufficient independence and autonomy for national legislations in the EU.

They are complemented by Figure 1 and Figure 2 which may make it easier to get an idea of the geographical distribution of EPL strictness and reforms. As already mentioned at the beginning of the section, employment protection is relatively strict in Europe compared with other OECD countries. Switzerland for instance applies a very lax employment protection (1.14), similar to the Anglo-Saxons Australia (1.15), New Zealand (1.40) and Canada (0.75). The least degree of regulation and employment protection is to be found in the United States (0.21) which is well-known for the ease of finding a job on the one and the suddenness of loosing it on the other hand. From the BRIC-countries Russia (1.92) turns out to be the most liberal, whereas Brazil (2.75), India (2.77) and China (2.65) apply stronger rules to their labor markets.

# 4. EPL AND EMPLOYMENT IN EUROPE

High unemployment rates and especially high long-term unemployment have become a lasting feature of many European national economies. In its 1994 Jobs Study the OECD sharply advocates, among others, a loosening of employment protection regulations in order to enhance the economies' "ability to *adjust and adapt*" (OECD 1994, p.45) to changing macroeconomic conditions. The rationale of such policy reform is laid down as follows:

"Employment security provisions operate in two directions. These provisions recognise the reality of long-term reciprocal commitments between workers and firms, and encourage firms to retain and retrain workers who would otherwise be made redundant. However, if firms perceive that employment security provisions oblige them to keep workers who are no longer wanted, they become cautious in hiring, and *'screen'* applicants more carefully, to the particular detriment of job-seekers with labour market disadvantages." (Ibid.)

Consequently, it is recommended to ease the possibility of dismissals on grounds of the economic situation and to leaving it to the economic agents to bargain over more detailed commitments in an employment relationship. The OECD furthermore supports the legalization of fixed-term contracts to enhance flexibility and adaptability.<sup>19</sup> The third policy advice contains an overall reduction in employment protection strictness in countries in which the institutional and legal settings hinder economic restructuring.

## 4.1 Stylized Facts about European Labor Market Performance

In the following I will describe the current labor market performance in Europe with respect to the employment rate, which refers to the working-age population (15-64 years) and which is taken from the OECD statistical database.<sup>20</sup> Looking at the employment rates in selected EU countries between 2001 and 2012 reveals a vast degree of heterogeneity of the labor

<sup>&</sup>lt;sup>19</sup> However, it is being mentioned that an abuse of fixed-term contracts could strain the welfare system through an increased reliance on unemployment benefits in this kind of employment relationship and thus proposes mandating a special severance payment for fixed-term contracts. Nevertheless, in the light of respectively designed employment contracts, such an obligation may result in lower wages negotiated and it remains questionable whether the negative consequences of fixed-term contracts can be prevented or mitigated in such way.

<sup>&</sup>lt;sup>20</sup> See the appendix for more detailed information about the data sources.

market performance. Over time and across countries the employment rate ranges from about 51% in Poland in 2003 to 78% in Denmark in 2008. Figure 3 shows the employment rate of 18 EU member states as well as the EU-27 average at three different points in time, in 2001, then in 2007 before the financial and economic crises hit and most recent information from 2012.<sup>21</sup> The lowest employment rates are found in the Southern European countries Greece, Spain and Italy as well as in three of the four included EU-10 states, Hungary, Poland and Slovakia. On the other hand, in the Scandinavian countries (Denmark, Sweden, Finland), the Central European countries (Netherlands, Germany and Austria) as well as in the United Kingdom employment rates tend to be traditionally high. Another possible way of distinguishing between countries is looking at the development since 2001 and the impact of the crisis since 2007. Here it is to be remarked that employment rates of Belgium, France, Czech Republic, Hungary, Netherlands and Sweden show the least volatility over the regarded time period, whereas especially in the crisis countries Ireland, Greece, Spain and Portugal, but also in Poland and Germany there were substantial changes in the employment rate over the last 12 years. Unlike the majority of countries, employment rates in Austria, Germany, Czech Republic and Poland have incrementally increased since 2001. Expectedly, the biggest decline in employment has taken place in the crisis countries Greece, Ireland, Portugal and Spain.

<sup>&</sup>lt;sup>21</sup> I follow the definition of employment provided by the ILO (1982) as it is formulated in OECD 2008: "Persons who during a specified brief period such as one week or one day, (a) performed some work for wage or salary in cash or in kind, (b) had a formal attachment to their job but were temporarily not at work during the reference period, (c) performed some work for profit or family gain in cash or in kind, (d) were with an enterprise such as a business, farm or service but who were temporarily not at work during the reference period for any specific reason." (OECD 2008, p. 170) The employment rate is given by the ratio of people in employment to the working-age population (15-64 years).

Figure 4: Employment rates in the EU



4.2 An empirical Model to assess the Impact of EPL on Employment Regarding the liberalizing reforms of employment protection legislation in Europe since 1994, the still prevalent suspicion with which institutionalized regulations on the labor markets are viewed and held responsible for high unemployment, this paper shall examine the

markets are viewed and held responsible for high unemployment, this paper shall examine the effect of EPL on labor market performance, particularly to numerically assess the effect of EPL on the employment rate. For the reason mentioned above, namely that assessing the effect of EPL on unemployment could deliver spurious results due to the drop-out of demotivated workers in search of a job in the following I will concentrate on the employment rate rather than on the unemployment rate. Another question of primary importance is the degree to which the European national labor markets differ in the way how they react to employment protection strictness. Several complementing labor market institutions as well as other country-specific factors make it conceivable that EPL will have different effects, probably in direction, but certainly in size across Europe.

In order to calculate the effect of employment protection legislation on employment I will deploy a simple dynamic fixed-effects as well as a random-effects model and will focus on the coefficient for EPL strictness in order to follow the question whether employment protection affects labor markets in the several EU member states in the same way and to the same extent. Including a relatively large number of countries in the sample enables me to group the countries according to the generosity of unemployment benefits which I will describe after having presented the model and data used.

The baseline model which is supposed to explain the employment level in the countries follows the one used by Nicoletti and Scarpetta (2001) who refer to the work of Layard, Nickell and Jackman (1991) and which has in a modified version also been taken up by Avdagic (2012) takes the following form:

$$EMPL_{it} = \alpha + \beta_1 EMPL_{it-1} + \sum_{1} \beta_1 macro_{lit} + \beta_2 EPL_{it} + \beta_3 UD_{it} + \beta_4 UB_i + \varepsilon_{it}$$

where  $\text{EMPL}_{it}$  denotes the overall rate of employment,  $\text{EMPL}_{it-1}$  is the one-year lagged employment rate, macro<sub>lit</sub> is a vector containing macroeconomic control variables. EPL is the version 1 of the OECD EPL index, UD denotes the union density and UB is a dummy where UB=1 if a country has relatively high unemployment benefits.

I am using quarterly aggregate data taken from the OECD statistical database and Eurostat to run both an OLS as well as a fixed-effects model. The sample comprises 18 present member states of the European Union and covers the time span from 2000 through 2008. The sample size as well as the country selection is unfortunately very much restricted by the availability of OECD EPL index calculations and publications. Since in 2009 the calculation method has been changed so that there is no EPL index version 1 available for the consequent years increasing the time period of the sample would require using an alternative measure for EPL, what is being advocated by Bertola et al. (2000) or Nickell as well as by Blanchard and Wolfers (2000), Allard (2005) or Heckman and Pagés (2000) who propose an alternative job-security index. Alternatively, it would also be possible to apply the same calculation methods the OECD is using to the respective legislations in countries and years not covered, as Avdagic (2012) does. Unfortunately, both the development of an alternative index as well as the provision of own calculations to complement the OECD EPL index are beyond the scope of this paper.

Another critical point about the OECD index data is that it is published on an annual basis and, as Avdagic (2012) mentions, interpolated from a view points in time at which legislative changes occurred. In addition to that, the index captures the adoption and not the actual implementation of reforms, which probably results in a lagged effect of EPL on observed labor market outcomes. In order to obtain a sufficiently large time dimension of the sample I also executed a linear interpolation of the annual data to quarterly observations. However, due to the little within-country variation in EPL, the interpolation does not notably affect the results. Before presenting and discussing these, I will turn to other labor market institutions that may affect employment through the demand for and supply of labor and that may furthermore also affect the way in which EPL determines labor market outcomes.

# 4.3 EPL and other Labor Market Institutions

The strictness of employment protection is far from being the only possible institutional determinant of employment. Following Boeri (2008), Avdagic (2012) and Nicoletti and Scarpetta (2001), in the following I will focus on certain labor market institutions beyond EPL strictness that may possibly alter the way how EPL influences employment. The tax wedge on labor is defined as the difference from take-home labor compensation and the total cost of labor. It comprises the actual tax deducted from labor income as well as mandatory social security contributions. In theory, a high tax wedge is expected to reduce the demand for labor as a consequence of the higher cost implied for employers. The impact on labor supply remains ambigious in theory, since on the one hand it may reduce the incentive to take up a

job, especially in the presence of generous unemployment benefits. On the other hand, it may force individuals to take up more than one job at the same time or to look for illegal employment in order to circumvent the tax wedge. However, these changes would not be reflected by a higher rate of employment, but rather by an increased number of hours worked.

Another difference across labor markets is the density of trade unions, which is defined as the ratio of all employees being member of a labor union to the total number of employees by the OECD. Strong unions typically increase the bargaining power of employees which may affect the labor market in a number of ways: through higher wages unemployment could rise, especially among outsiders who are not employed and thus not under the protection of a union. Additionally, high bargaining power may result in stricter employment protection and through this channel affect labor market outcomes in all the possible ways discussed in 2.2.<sup>22</sup> Labor market dualization, i.e. increasing disparities between labor market insiders and outsiders as well as increasing youth unemployment could be other consequences of strong and big labor unions. Booth et. al. (2001) provide a comprehensive discussion of the theoretical effects of unions on labor market outcomes in Europe.

Another important feature of national labor markets is the unemployment benefit replacement rate, a weighted average from the share of former income that several types of workers and households receive as unemployment benefits, as well as the duration of benefit entitlement. High unemployment benefits are supposed to increase the reservation wage and thus lengthen the average duration of unemployment and consequently raise the unemployment rate. However, an opposite effect is also conceivable: In the light of a higher reservation wage unemployed persons may stop searching for a job and decide to live on unemployment benefits and other social transfers, if available and sufficiently high. As a result, the unemployment rate would decrease. The possible effect on the employment rate is

<sup>&</sup>lt;sup>22</sup> This would imply that EPL itself is endogenous and alter the interpretation of results. The possible endogeneity of EPL and reverse causality will be discussed in th following section in more detail.

less ambigious, since it would decrease in both cases, independent from the question whether a person continues their job search or not. Avdagic (2012) further points out, that in the light of high unemployment benefits unions would even more push for higher wages in order to benefit their members relative to the unemployed outsiders.<sup>23</sup>

Since there is no substantial within-country variation in the used measure of unemployment benefit replacement rate, I am using the country means over the considered period in order to characterize the welfare generosity with respect to the unemployment benefit replacement rate. Using a dummy variable for a time-invariant description of one of these labor market institutions will in a fixed-effects model result in a multicollinearity problem, which is why I follow two slightly different methodological strategies:

First, I will run an OLS regression over the whole sample in which I, in addition to the EPL strictness as independent variable of interest, also include a dummy which takes the value one if the gross unemployment benefit replacement high is comparatively high as well as an interaction term in a second step which then allows me to look at the joint effect that high unemployment benefits and employment protection strictness may have. Since the scarce data I have on unemployment benefit replacement rates make it necessary and the little variation of these over time justify working with country means according to which I group the countries into three categories of different benefit generosity, this would prevent the application of a fixed-effects model as a consequence of arising multicollinearity. Since it cannot be precluded that there are country-specific characteristics and effects not controlled for in the regression, which influence the employment rate, the additional application of a fixed-effects model seems to be desirable in addition to the above discussed OLS estimation strategy. To do this, I will split up the sample into three subsamples each comprising countries that have a similar rate of unemployment benefit replacement. Being aware that this will

<sup>&</sup>lt;sup>23</sup> The degree of wage bargaining coordination is also being considered as having effects on employment, but since there is no universal index measure of corporatism for the countries and the time span covered, the consequences of wage bargaining coordination will not be assessed in more detail in this analysis.

drastically reduce the size of the samples in view, the application of a fixed-effects model alone does not seem appropriate.

### 4.4 Results

In this section I will describe and interpret the results obtained from the above presented estimation methods. Table 5 shows the numerical results from the executed OLS estimation. In the multivariate regression on the employment rate among the macroeconomic control variables logEMPL<sub>t-1</sub> denotes the log employment rate lagged by one year, dGDP and dGDP<sub>t-1</sub> are the recent growth rates of gross domestic product as well as the growth rate lagged by one more year, respectively, dCPI is the change in inflation measured by the consumer price index (CPI) and R is the ex-post real interest rate. Among the variables of primary interest, EPL denotes the strictness of employment protection legislation. It is important to note that the variable EPL is not expressed in its original unit ranging from 0-6 but has been standardized in order to ease interpretation. HighUB is a dummy taking the value one if an observation comes from a country with relatively high or generous unemployment benefit gross replacement rate and EPL\*HighUB is an interaction term supposed to capture the combined effect of EPL and a high unemployment benefit replacement rate. For a more detailed description of the variables and the data, see the list of variables and definitions in the appendix. UD stands for union density, the share of all employed persons which are member of a labor union.

Looking at the results from the OLS estimation of the baseline model first of all reveals that three out of four macroeconomic control variables have the expected sign: both the growth rate of gross domestic product as well as the lagged growth rate are positively correlated to the employment rate, whereas the ex-post real interest rate tends to suppress the employment rate. Only the coefficient for the inflation variable unexpectedly takes a negative value. However, the effect is very small and probably negligible. If ceteris paribus the change in inflation increased by one percent, the results suggest that the employment rate would drop by only 0.06%. The effect of the union density on employment is positive, but indeed even smaller; an increase in the union density by one percent would only result in a 0.007% increase in the employment rate.

Panel data OLS regression results: log employment 18 countries, 2000-2008			
constant	0.0595**	0.0785***	
	(0.0243)	(0.0240)	
logEMPL <sub>t-1</sub>	0.9869***	0.9829***	
	(0.0058)	(0.0057)	
dGDP	0.0019***	0.0020***	
	(0.0002)	(0.0002)	
dGDP <sub>t-1</sub>	0.0018***	0.0017***	
	(0.0003)	(0.0003)	
dCPI	-0.0006*	-0.0006**	
	(0.0003)	(0.0003)	
R	-0.0020***	-0.0017***	
	(0.0003)	(0.0003)	
EPL	0.0034***	0.0052***	
	(0.0008)	(0.0010)	
UD	6.13E <sup>-5</sup> **	-6.8E <sup>-5</sup> *	
	$(3.02E^{-5})$	$(3.6E^{-5})$	
High UB	-0.0036***	-4.6E <sup>-5</sup>	
2	(0.0013)	(0.0015)	
EPL*HighUB		-0.0086***	
-		(0.0017)	
R-squared	0.9884	0.9888	
adj. R-squared	0.9882	0.9886	
No. of observations	581	581	
Standard errors are reported * indicates significance a ** indicates significance a *** indicates significance a	d in parentheses. The values of at the 90% level at the 95% level at the 99% level	EPL have been standardiz	

Table 5: Panel data OLS regression results: log employment	t rate
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The strictness of employment protection has, in contrast to the assumption underlying the OECD Jobs Strategy, a positive effect on the employment rate. If EPL was to increase by one standard deviation, this would result in a 0.34% higher rate of employment.

Extending the baseline model through the inclusion of an interaction term of EPL and high unemployment benefits does not dramatically change the results. In this case, the coefficient of EPL alone becomes even bigger and indicates, that an increase in EPL by one standard deviation would ceteris paribus increase the employment rate by 0.52%.

In contrast to that the sign of the interaction term of EPL strictness and high unemployment benefit replacement rates is negative and in its size exceeds the effect of EPL alone. Consequently, the positive effect of EPL (0.52%) would be wiped out in the presence of high unemployment benefits (-0.86%). The coefficient for high unemployment benefits alone, however, takes a negative sign but remains negligibly small and is the only one of the coefficients which is not statistically significant at the 10% level. In the extended model the sign of the coefficient for the effect of union density changes to positive but, as before, remains negligibly small. Before discussing the results and their consequences, tables 6 and 7 summarize the numerical results obtained from the additional groupwise OLS and fixed effects estimation strategy applied.

Panel data r 2000-2008	egression results: log employment ra OLS estimation	te
	Sample: low unemployment Benefits, 7 countries	Sample: high unemployment benefits, 7 countries
constant	0.1702***	0.0572*
	(0.0392)	(0.0333)
logEmpl <sub>t-1</sub>	0.9584***	0.9848***
• • • •	(0.0095)	(0.0079)
dGDP	0.0016***	0.0027***
	(0.0004)	(0.0004)
dGDP <sub>t-1</sub>	0.0021***	0.0023***
	(0.0005)	(0.0004)
dCPI	-0.0005	0.0020***
	(-0.0004)	(0.0006)
R	-0.0025***	-0.0009
	(0.0005)	(0.0006)
EPL	0.0014	-0.0051***
	(0.0015)	(0.0013)
UD	0.0003	-0.0002***
	(0.0002)	$(3.28E^{-5})$
R-squared	0.9857	0.9885
adj. R-squared	0.9853	0.9881
	235	236

 Table 6: Panel data OLS regression results: log employment rate, grouped

2000-2008 IIX	ed effects estimation	
	Sample: low unemployment	Sample: high unemployment
	Benefits, 7 countries	benefits, 7 countries
constant	0.24042*	1.3753***
	(0.1421)	(0.2056)
logEmpl <sub>t-1</sub>	0.9565***	0.6872***
0 1 11	(0.0336)	(0.0474)
dGDP	0.0021***	0.0023***
	(0.0003)	(0.0004)
dGDP <sub>t-1</sub>	0.0010*	0.0020***
	(0.0005)	(0.0004)
dCPI	0.0009**	0.0027***
	(0.0004)	(0.0006)
R	-0.0016***	0.0017***
	(0.0005)	(0.0006)
EPL	0.0206***	-0.0092
	(0.0036)	(0.0069)
UD	-0.0020***	-0.0014***
	(0.0004)	(0.0003)
11 D 1	0.7030	0.9472
overall R-squared		
overall R-squared observations	235	236

 Table 7: Panel data fixed effects estimation results log employment rate, grouped

There are several conceivable explanations why for the considered time period and the country sample selection employment protection strictness may increase employment. First of all, it needs to be mentioned that in the empirical analysis I have focused on the overall employment rate without distinguishing between various forms of employment. As has already been described above, EPL strictness may not necessarily reduce the overall employment, but rather cause a shift from regular forms of employment towards other, often newly emerged, for which none or a reduced employment protection is provided. If this was the case that employers were more hesitant to offer regular job contracts but rather favored alternative forms of employment which are subject to less restrictions, then this consequence of EPL would not be reflected in a reduced overall employment rate.

Another possible way of explaining the positive effect of EPL on the employment rate is that the restrictions which mainly refer to the dismissal of employees to a higher degree prevent dismissals than they prevent hirings and not the other way around. Employers may not appropriately foresee the occurrence of external product demand shocks which prevents them from anticipating the increased cost of labor stock adjustment imposed by strict employment protection legislation. Since the lion's share of the burden that employers face in the light of strict EPL does not increase the cost of labor itself but the cost of adjusting the employed labor force as a consequence of shocks, which may not be expected or taken into account when the hiring decision is made, it is not implausible that EPL may enhance employment.

Furthermore, other than unemployment which implies that a person is searching for a job, the supply side of labor must not be neglected when trying to explain the consequences of EPL. Especially in countries which tend to have a high level of undeclared employment and prospective employees make a choice whether to be employed in the regular official labor market or whether to look for illicit employment, employment protection may well induce people to prefer an official employment status and the protection it provides, especially if the wage differentials between official and unofficial labor market are low. If not for the sake of illegally receiving unemployment benefits, these persons would have not been counted by the unemployment statistics before, which is why in this case no change in the unemployment rate could be expected. The employment rate, however, is likely to experience an increase as the consequence of such instances. Since there are some countries in the sample in which the existence of a significant share of illicit employment can hardly be negated, this provides another possible explanation for the positive effect of EPL on the employment rate. Another, more simple, explanation of the beneficial effects of EPL involves labor productivity increases which may be a consequence of stricter EPL, causing employers to provide more training, employees to invest more in the development of firm-specific skills and inducing the firms' human resource management to be optimized. If the productivity of labor is to be enhanced this way, positive effects on the employment rate are the likely corollary. This would consequently mean that the results are spurious, since then I would not have calculated the effect of EPL on employment, but rather assessed the effect of productivity increases.

Another decisive question which I am not able to answer in this paper is the question of the actual causality. By this empirical analysis it cannot be precluded that EPL might be an endogenous variable, which would then suggest that there is a reverse causality: if employment protection was not exogenously given, but was itself influenced by the macroeconomic situation and conditions, this could mean that countries with high employment rates allow themselves a higher degree of employment protection than countries in which the employment rate is relatively low and policymakers may be more cautious in order not to further suppress it through stricter EPL. Nevertheless, it has been shown that in the country sample over the last years EPL strictness was more often lowered than increased, suggesting that states with a better labor market performance rather tend to postpone or delay labor market reforms. In both cases there is a positive correlation between employment and EPL strictness but the causality would be the reverse one to what has originally been presumed.

However, the positive effect of EPL seems to be conditional upon the generosity of the unemployment benefits, as the interaction effect coefficient indicates. Whereas on average over the whole sample an increase by one standard deviation of EPL would raise employment by 0.52 percentage points, in a country considered as having relatively high unemployment benefits it would lower the employment rate by 0.86 percentage points. This is an especially interesting finding since it suggests that the effects of EPL cannot properly be assessed without taking other labor market institutions into account. The relatively large negative effect of EPL in combination with generous unemployment benefits suggests that the supply of labor plays a decisive role in how EPL affects the employment rate. The seemingly most

plausible and convincing interpretation again refers to alternative forms of employment to which EPL does not or to a lesser extent apply. If strict EPL enhances the deployment of parttime work or the use of so-called contracts of work and labor<sup>24</sup>, to which other features of regular contracts such as minimum wages or alternative collective bargaining agreements typically neither apply, then the conditions of pay may be such that a person in question finds it more profitable to receive unemployment benefits and continue the search for a regular job. Since under stricter EPL it may be more difficult to find a regular job, the job search time consequently becomes longer. In this case it is the generosity of unemployment benefits that enables individuals to search longer for a job than otherwise possible and through this mechanism dampens employment. To put it differently, the non-regular forms of employment with their often dismal earnings perspectives which gain importance under relatively strict EPL, with employers seeking to circumvent restrictions and duties, would not necessarily lower a person's reservation wage if expected unemployment benefits are high enough and thus negatively affect employment.

Concluding this section, I in the following make the attempt to summarize the central findings of the empirical analysis. The estimation results suggest that the overall effect of EPL on the employment rate is positive on average for the sample comprising observations from 18 member states of the European Union from 2000 through 2008. This may on the one hand be due to the fact that I am using the overall employment rate, rather than looking at different kinds of employment separately, which may turn out to be more conclusive in the case that EPL changes the use of different legal forms of employment. Alternatively or additionally EPL may to a greater extent prevent dismissals than it reduces hirings, probably a consequence of myopic behaviour of employers who do not foresee the impendence of external demand shocks in which EPL becomes striking in form of labor stock adjustment

<sup>&</sup>lt;sup>24</sup> The ILO calls this form of employment own-account workers and defines it as "workers who, working on their own account or with one or more partners, hold the type of job defined as a self- employed job, and have not engaged on a continuous basis any employees to work for them during the reference period" (ILO 1993, p.3)

costs. In countries with a high share of illicit employment the absence of strict EPL may induce employees to leave the official employment, which would also be reflected in a lower rate of employment. Finally the possibility of productivity increases caused by EPL should not be ignored. However, it needs to be kept in mind that it could be a reverse causality underlying the positive correlation of EPL and employment, meaning that EPL itself would be dependent on some of the factors it is tried to be explained with. What the results also suggest is that the effect of EPL may be altered in the presence of other labor market institutions, such as a high unemployment benefit replacement rate, which seems to turn the positive overall effect of EPL into an even greater negative one. From this follows that an isolated assessment of the effects of EPL may be misleading and that it is highly advisable to look at the interactions of EPL with other labor market institutions and features of labor market organization. Nevertheless, the results should be dealt with cautiously: In the next section I will discuss numerous problems and caveats of the applied empirical strategy.

### 4.5 Methodological caveats

In the following I will point at and discuss several methodological problems and drawbacks. Part of them refer to the availability of data and the resulting sample size: One central problem is that calculations of the OECD EPL index are not available for many countries or only cover a short period of time. Furthermore, over the years the calculation method has been changed, so in 2009, which makes it impossible to directly compare EPL strictness before and after. To that comes that the EPL index contains only information about the point in time in which legislative changes have been enacted, but not about the actual implementation, which may be subject to a substantial lag in some cases. Consequently, the actual effects would take place an undefinite time period later than indicated by the legislative changes. As Avdagic (2012) emphasized, the OECD uses a few data points to interpolate the annual index, a further interpolation to quarterly data as I have executed may thus be critically viewed, although the

little within-country variation<sup>25</sup> in the EPL index does not make the interpolated data and results differ significantly from the non-interpolated data. The small degree of changes within some of the countries in the sample sheds also doubt on the appropriateness of applying a fixed-effects estimation. In addition to that it is thoroughly possible that EPL strictness is not an independent variable, but endogenous, which would not negate the positive correlation, but suggest a reverse causality and completely change the implications of this research.

Whereas unemployment rates are widely available for most countries on a quarterly basis, rates of employment are to a lesser extent, which additionally restricts the sample size. Being aware of that, I also tried to use micro data from the EU Labor Force Survey in order to calculate missing values for the employment rate. However, the frequency or the time period covered in the EU LFS turned out to be such that it was not possible to use it in order to increase the time span of the sample for the country selection.

Access to data concerning the unemployment benefit replacement rate is also very limited. As a consequence, I had to use the average over the covered time period, which, however, is not a serious problem since there was only little variation in the rates over time. What else may be critically mentioned is that I, in lack of the net unemployment benefit replacement rates, used the gross rates which may be less meaningful for questions of labor supply than the net rates, as Martin (1996) emphasizes. Furthermore the classification of countries according to the generosity with respect to unemployment benefits is somehow arbitrary and could well be done in a different way.

This leads us to the probably most severe weakness of the empirical analysis which is its lack in robustness. Besides the coefficient of EPL whose sign does not change as a result of a different specification or country selection, especially the results for the variable of union density and the interaction of EPL and high unemployment benefits suffer from a high degree of volatility. Accordingly, the results have to be handled with caution.

<sup>&</sup>lt;sup>25</sup> In the appendix the frequency of changes in EPL is reported for all sample countries.

Despite the mentioned weaknesses and the consequent caveats, the results suggest that the effect of EPL on employment is not necessarily exclusively negative for the countries included in the sample. Furthermore, the finding that EPL does not have an invariant effect on employment, but that its effect is conditional upon additional labor market institutions and features, may also give advice to policymaker when it comes to tackling high unemployment or low employment in Europe.

# **5. POLICY IMPLICATIONS**

In the following chapter I will briefly reflect on the main recommendations from the OECD Jobs Strategy which have first been formulated in 1994. There are in particular three recommendations that focus on employment protection and its impact on unemployment: The OECD advised most of its member countries to loosen the restrictions for dismissals if they were the result of economic necessities and furthermore favored a minimum statutory employment protection complemented by decentralized, individually bargained additional protection measures and commitments. Additionally, in countries with a need for economic restructuring a higher degree of flexibilization should be achieved. Finally, it advocated the permission of fixed-term contracts, not without acknowledging the strain this might pose on the welfare system through more drawings on the unemployment benefit scheme.

First and foremost, the recommendations remain vague, since no definitions of dismissals due to economic necessities or the need for economic restructuring are provided. It is neither further elaborated on the question how a decentralized employment protection could look like, which would have been a central question in the light of the problems that may prevent the establishment of effective non-statutory employment insurance which have been mentioned in 2.1. My main point of critique, however, refers to the fact that the OECD has, even years after the Jobs Strategy had been formulated, not been able to empirically substantiate their claim for labor market flexibilization with respect to employment enhancement. Consequently, it remains highly questionable whether the promoted labor market reforms can have the desired effects and promote employment.

In this paper and its empirical analysis I have shown that for a selection of 18 EU member states during the period 2000-2008 EPL on average had positive effects on the overall rate of employment, but that the direction of the effect is conditional upon the generosity of the unemployment benefits, with EPL suppressing employment in the presence

of high unemployment benefit replacement rates. From this it follows that there cannot be a one-size-fits all labor market reform strategy to enhance employment, but that countries with relatively high unemployment benefits and relatively low employment, such as Belgium, France or Portugal may promote employment through a liberalization of EPL, whereas in countries with low unemployment benefits and low employment, such as Greece, Italy, Hungary, Poland and Slovakia this may have the opposite effect, since in the presence of lower employment protection the number of dismissals in reaction to even smaller external demand shocks may exceed the positive effect that reductions in employment protection would have on the number of hirings. In conclusion of the analysis, there are three main lessons for policymakers dedicated to feature a better performance of labor markets in the European Union:

- i. The demand for labor is not necessarily the only determinant of labor market performance. Illicit labor markets that may become more attractive in the absence of employment protection for regular employment as well as eligibility to high unemployment benefits may change incentive structures of taking up a job, which will also be reflected in the employment rate. In that sense, the analysis has shown that an exclusive concentration on questions of labor demand may not be sufficient for tackling poor labor market performance.
- ii. Different labor market institutions may unfold their effects in interdepence. Only if these interactions are further studied and assessed and the way how they interact is known to policymakers, proper reforms can be designed and implemented. As in this case, the exclusive focus on EPL without taking into account unemployment benefit generosity would have led to adverse results. This leads us to the third implication:

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iii. There is no one-size-fits-all labor market reform blueprint. If experiences from successful reforms in one country shall be transferred to another, the exact circumstances of the success need to be analyzed in order to make sure the reform in question may lead to the intended results.

There are too many unanswered questions left to provide a full set of policy recommendations. However, the results show that tackling EPL may not be an appropriate way to enhance employment in Europe, especially as long as there are substantial doubts regarding the interaction with a number of other labor market institutions and the occurrence of adverse effects. In addition to that, it should not be overlooked that employment protections follows certain objectives and a reduction would mean giving up the respective benefits from it or require replacing them with other measures.

# 6. CONCLUSION

It is nearly 20 years ago that the OECD formulated their Jobs Strategy, part of which recommended the liberalization of employment protection provisions in order to improve labor market performance. The discussion of the respective literature and empirical research revealed that, whereas some effects of EPL are broadly and unanimously confirmed, the effect on employment remains uncertain since the empirical findings are mostly inconclusive.

Applying a simple reduced-form panel data regression model explaining the employment rate including observations from 18 member states of the European Union for the period 2000-2008 has shown that the overall effect of EPL on the employment rate is positive. However, the inclusion of an interaction term of EPL with unemployment benefit generosity suggests, that the effect of EPL on employment is conditional upon the latter. It is conceivable that the positive effect of EPL follows from skewed labor market dynamics, i.e. that EPL strictness reduces dismissals more than it discourages hirings, from possible productivity increases caused by EPL or from an increased labor supply in those countries that have a relatively high shadow labor market which in a way stands in competition with the official labor market. The big negative effect of EPL on employment in a setting with high unemployment benefits is likely to indicate that job-seeking individuals may have a harder time finding regular employment and are able to afford a longer job search with high unemployment benefits instead of more quickly taking up some alternative form of employment worse paid or less protected by EPL.

However, the results need to be handled with caution. First of all, using not only the overall employment rate but also employment rates for certain groups of kinds of employment may enrich or even change the picture. In addition to that there are some methodological caveats and imponderabilities, such as the short sample period, weaknesses of the OECD EPL summary index or the volatility of results with respect to different country selections which

may attract some critique and deserve more attention in an ongoing research process. Despite all the possible criticism, a panel regression as applied here, even if the time period might be considered as rather short, seems to be more appropriate and informative than the two-stage estimations executed by the OECD (1999b), which does in addition not take advantage of the full information regarding employment protection strictness but uses five-year averages of EPL strictness, which seems legitimate for countries in which there were none or very few changes, but consequently ignores a certain number of legislative changes in others.

As the review on existing empirical evidence on the effects of EPL on employment has revealed, the picture is a mixed one and remains vaguely inconclusive. The results found in my research do not join the bigger number of researches that find a negative effect of EPL on overall employment. Acknowledging that the results may be different across groups of persons and types of employment, the main implication from this study is that employment protection does not necessarily and exclusively suppress employment, that it needs to be analyzed in a broader context accounting for complementing labor market institutions and country-specific settings in order to adequately study its effects and develop reform policies to tackle some of the problems of deeply troubled European labor markets. Thus I highly advocate studying the numerous possible interactions and interdependencies which may exist between different labor market institutions in more detail. In addition to that, eventually a model would be needed to explain the formation and evolvement of employment protection strictness in order to get to know more about actual questions of causality in connection with EPL.

# APPENDIX A: DEFINITIONS AND VARIABLES

Sample period: 2000-2008 Countries in the sample:

Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, United Kingdom

• Employment rate: employed persons as a percentage of the working-age (15-64 years) population of a country; employment is given if a person in the reference period worked for pay, profit or family gain or was temporarily absent from such an occupation; thereby the definition follows the Resolution Concerning Statistics of the economically active Population, Employment, Unemployment and Underemployment, adopted by the Thirteenth International Conference of Labour Statisticians, October 1982 (ILO 1982)

Statistics are taken from the OECD short-term labour force statistics.

- EMPL<sub>t-1</sub>: the employment rate, lagged by one year;
- EPL: OECD index of Employment Protection Legislation, version 1 (1985-2008), overall index comprising legislative regulations concerning regular contracts, fixedterm contracts as well as collective dismissals; higher numbers indicate stricter legislation; linearly interpolated from annual to quarterly data; the values have been standardized;
- dCPI: change in inflation measured by the consumer price index (CPI); data taken from the OECD Monthly Monetary and Financial Statistics;
- dGDP: quarterly GDP growth rate of real GDP, change over same quarter of previous year, expenditure approach; from OECD statistical database of quarterly national accounts;
- dGDP<sub>t-1</sub>: quarterly GDP growth rate of real GDP, change over same quarter of previous year, lagged by one year;
- R: real ex-post interest rate, calculated through Fisher-Parity: nominal short-term interest rate per annum (OECD Monthly Monetary and Financial Statistics) – inflation (CPI, OECD Monthly Monetary and Financial Statistics)
- UD: union density, the share of all employed persons which are member of a labor union
- HighUB: dummy variable with HighUB=1 if the gross unemployment benefit replacement rate is considered as relatively high;
- EPL\*HighUB: interaction term of EPL strictness and the dummy variable for high unemployment benefits

# APPENDIX B: LABOR MARKET INSTITUTIONS

 unemployment benefits: gross replacement rates of benefit entitlements, summary measure according to Martin (1996), uneven years from 2001-2007, averages, in %

Low < 20%		Medium 20-35%		High > 40%	
Czech Rep.	6.0	Austria	28.25	Belgium	36.75
Italy	8.0	Germany	27.5	Denmark	54.0
Greece	8.5	Ireland	33.25	Finland	35.75
Hungary	9.5	Spain	33.0	France	36.5
Poland	10.75			Netherlands	42.5
Slovakia	9.5			Portugal	37.5
UK	11.5			Sweden	37.5

#### Table 8: Unemployment benefit generosity

 union density: share of union members in the total employed population, in %, according to Visser et al. (2011), taken from the OECD statistical database, linearly interpolated from annual to quarterly data;

#### Table 9: Union density 1

Low < 25%		Medium 25-50%		High > 50%	
Czech Rep.	21.12	Austria	33.26	Belgium	51.87
France	7.8	Greece	25.03	Denmark	71.93
Germany	22.05	Ireland	35.15	Finland	72.34
Hungary	18.01	Italy	33.81	Sweden	75.28
Netherlands	20.56	UK	28.84		
Poland	20.09				
Portugal	21.19				
Slovakia	24.34				
Spain	15.57				

Number of changes in EPL strictness 2000-2008							
0	1	2	3	4	5	6	
Belgium	Austria	Czech Rep.	France	Spain	Finland	Italy	
Denmark	Ireland	Greece	Netherlands		Germany		
	Sweden	Hungary			Portugal		
		Poland					
		Slovakia					
		UK					

### Table 10: Number of changes in EPL 2000- 2008

# APPENDIX C: OECD EPL INDEX CALCULATION

For a more detailed description of the OECD EPL strictness summary indicators, see: OECD: "Calculating Summary Indicators of Employment Protection Strictness." <u>http://www.oecd.org/els/emp/42740190.pdf</u> (last accessed May 29, 2013)

Level 1 Scale 0-6	Level 2 Scale 0-6	Level 3 Scale 0-6	Level 4 Scale 0-6	Version 1 & 2 weights	Version 3 weights
O V R	Regular contracts (version 2 & 3: 5/12:)	Procedural inconveniences (1/3)	1. Notification procedures	(1/2)	(1/2)
			2. Delay to start a notice	(1/2)	(1/2)
		Notice and severance pay for no-fault individual dismissals (1/3)	9 months	(1/7)	(1/7)
			3. Notice period after 4 years	(1/7)	(1/7)
			20 years	(1/7)	(1/7)
			9 months	(4/21)	(4/21)
			4. Severance pay after 4 years	(4/21)	(4/21)
Ê			20 years	(4/21)	(4/21)
L	(version 1, nz)	Difficulty of dismissal (1/3)	5. Definition of unfair dismissal	(1/4)	(1/5)
			6. Trial period	(1/4)	(1/5)
N M A R Y I N D I C A T O R			7. Compensation	(1/4)	(1/5)
			8. Reinstatement	(1/4)	(1/5)
			9. Maximum time for claim		(1/5)
	Temporary contracts (version 2 &3: 5/12) (version 1: 1/2)	Fixed term contracts (1/2)	10. Valid cases for use of fixed-term cont	racts (1/2)	(1/2)
			11. Maximum number of successive cont	racts (1/4)	(1/4)
			12. Maximum cumulated duration	(1/4)	(1/4)
		Temporary work agency employment (1/2)	13. Types of work for which is legal	(1/2)	(1/3)
			14. Restrictions on number of renewals	(1/4)	(1/6)
			15. Maximum cumulated duration	(1/4)	(1/6)
			16. Authorisation and reporting		(1/6)
			17. Equal treatment	11013	(1/6)
	Collective dismissals		18. Definition of collective dismissal	(1/4)	(1/4)
			19. Additional notification requirements	(1/4)	(1/4)
(version 2 &3:			20. Additional delays involved	(1/4)	(1/4)
	(version 1: 0)		21. Other special costs to employers	(1/4)	(1/4)

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