Do Flexicurity Policies Affect Labour Market Outcomes?
An Analysis of EU Countries

SUZANA LAPORŠEK[*]
PRIMOŽ DOLENC
Faculty of Management
University of Primorska
Koper, Slovenia

The paper examines the issue of flexicurity in the EU Member States and studies the relationship between flexicurity policy components (i.e., employment protection legislation, lifelong learning programmes and active and passive labour market policies) and labour market performance (i.e., employment, unemployment and long-term unemployment rates) in 20 EU Member States over the 1990–2008 period. The panel regression analyses showed that expenditures for active employment policies and participation in lifelong learning positively associate with labour market outcomes, as they enhance human capital of workers and therefore increase their probability to be employed. On the other hand, generous PLMPs negatively correlate with unemployment-employment transitions. Less explicit are results regarding the relation with EPL strictness. The research findings point to the importance of shaping balanced flexicurity policies for further development of European labour markets and economies.

Key words: *flexicurity, labour market outcomes, labour market policies, empirical analysis, European Union.*

INTRODUCTION

The idea of flexicurity has become one of the most prominent recommendations in the field of employment in the European Union (EU). As it strives for flexibility while maintaining high level of social security, it poses a great challenge to rather rigid European labour markets, especially in the context of demographic ageing and labour market segmentation problems, intense globalization and rapid technological developments. Namely, on one hand, firms need flexible labour market to quickly adapt their workforce to changing conditions and stay competitive. On the other hand, labour market should ensure security in terms of protecting employees from losing their jobs and enabling them to enter, remain and progress in employment through their life-cycle (see European Expert Group on Flexicurity, 2007).

The EU promotes flexicurity through four policy elements: (i) flexible and reliable

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[*] Suzana Laporšek, Faculty of Management / Fakulteta za menagement, University of Primorska / Univerza na Primorskem, Cankarjeva 5, SI-6104 Koper, Slovenia / Koper, Slovenija, suzana.laporsek@fm-kp.si

contractual relations, (ii) lifelong learning (LLL), (iii) active labour market policies (ALMPs), and (iv) social security system. The main objective of this paper was to study how do these flexicurity components affect labour market outcomes in the EU Member States. As each of the elements presents a complex indicator, we based our analysis on representative variables of flexicurity, used also by the European Commission (EC, 2007a). We were therefore interested, whether Employment Protection Legislation (EPL) index, participation in LLL programmes and expenditures for active and passive labour market policies (ALMPs and PLMPs, respectively)[1] are associated with employment, unemployment and long-term unemployment rates among the EU Member States. The estimates were obtained using panel regression models based on data for 20 EU countries between 1990 and 2008.

The rest of the paper is organized as follows. Section 2 briefly explains the concept of flexicurity and its components, followed by an overview of empirical studies on the relationship between individual flexicurity variables and labour market outcomes in Section 3. Section 4 provides an overview of the implementation situation of individual flexicurity policy components across the EU Member States. Section 5 presents methodology and data. Section 6 employs panel regression methods to analyse the relation between flexicurity policy compo-

nents and labour market outcomes. Section 7 concludes.

THE CONCEPT OF FLEXICURITY

The notion of flexicurity presents an oxymoron that combines two concepts (i.e., flexibility and security) that were previously seen in opposition.[2] It was first employed in the context of labour market reforms in the Netherlands during the mid-1990s, which resulted in the adoption of the Flexibility and Security Act and the Act concerning the Allocation of Workers via Intermediaries. These acts aimed to ease rules for dismissal and rules for starting a temporary work agency and to provide for higher level of security for employees in flexible jobs (see Keune and Jepsen, 2007; Wilthagen and Tros, 2004). Although the idea of flexicurity has been activated in the Netherlands, it is today often associated with the Danish labour market. The Danish "golden triangle" namely presents a prime example of a well-functioning flexicurity arrangement. It combines flexible labour market (i.e., high degree of occupational and geographical job mobility due to low employment protection), high social security (i.e., generous system of unemployment benefits, UBs) and ALMPs aimed at skill improvement and activation of unemployed.[3]

Flexicurity is today in the core of academic and political debate on labour market

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[1] As the institutional variables for generosity of income replacement during unemployment were not available for the entire studied period, we use expenditures for PLMPs as a proxy of unemployment benefits (UBs) generosity. Namely, our analysis showed that countries with higher expenditures for PLMPs, on average, provide higher income replacement during unemployment (relation is statistically significant at 5% level of significance); results are available on request.

[2] The term flexicurity was probably chosen because of its appeal as a win–win solution, both for workers and employers, and due to its broadness, which allows everybody to put their preferred version of definition under its umbrella. However, the importance of the term rose by its adoption in the institutional language of the European Commission (Auer, 2010).

[3] Although the Danish golden triangle presents a successful model of flexicurity, this is not the guarantee that the same model would also be effective in other countries. A review of possible reasons why implementation might fail in other countries is available in de Groot and Elhorst (2010) and Algan and Cahuc (2006).

reforms. Even though its importance within the employment agenda is rising, the concept of flexicurity remains ill defined. The most widely used definition comes from Wilthagen and Tros (2004: 14) who define flexicurity as *"… **a policy strategy that attempts, synchronically and in a coordinated way, to enhance the flexibility of labour markets, the work organization and labour relations on the one hand, and to enhance security – employment security and social security – notably for weaker groups in and outside the labour market on the other hand**."* As this definition recognizes flexicurity mainly as a deliberate political choice, they also introduced a definition which refers to flexicurity as a state of affairs. This means that it takes into account the degree of job, employment, income and combination security and the degree of numerical (both external an internal), functional and wage flexibility. The third understanding of flexicurity is as an analytical tool that can be used to analyse developments in flexibility and security and to compare national labour market systems (Bredgaard et al., 2006; Madsen, 2007).

According to the above definitions, both flexibility and security are multi-dimensional concepts, each of them including four dimensions. In order to identify different flexicurity policies, Wilthagen and Tros (2004) constructed a matrix that comprised all dimensions of flexibility and security, resulting in 16 different combinations which should all lead to win-win situations in the labour market. Nevertheless, the matrix has been subjected to several critics. For instance, Leschke et al. (2006) criticized the assumption of trade-off between flexibility and security and pointed that flexibility-security nexus should reflect a complementary relationship, therefore demanding a more

dynamic approach. Moreover, they mentioned that flexibility-security nexus could lead to a downward spiral and losses for both employer and employee. To avoid the latter, they proposed to integrate flexicurity concept in a transitional labour market policy approach.[4] Keune and Jepsen (2007) believed that large number of combinations might render flexicurity as a vague or ambiguous concept. Moreover, Tangian (2004) and Bertozzi and Bonoli (2009) emphasized the question of how to effectively measure flexicurity dimensions.[5]

Probably the main reason why flexicurity has become such a key concept is its adoption and promotion by the EC. The search for balance between flexibility and security is especially evident within the European Employment Strategy. Namely, according to the Council of the EU, flexicurity presents a toll that would positively affect competitiveness of firms, enhance quality and productivity at work and facilitate adaptation of employers and employees to economic changes (Council Decision 2003/578/EC). Flexicurity was therefore the European answer to the "flexibility-of-labour-markets-will-bring-about-economic-and-employment-growth-and-welfare-for-all" mantra of the neoliberal kind, associated with former employment successes in the United States (Auer, 2007).

The term flexicurity was in the EU rhetoric for the first time included with the adoption of the European Council's Presidency conclusions in 2006. The European Council labelled flexicurity as a measure to increase employment opportunities and thereby invited Member States to follow the flexicurity approach when performing labour market policies. To encourage Member States to implement flexicurity policies, the European Expert Group on Flexicurity

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[4] Transitional labour market policy approach focuses on solutions for the flexibilisation of employment in order to ease transitions in and out of the labour market (Rogowski, 2009).

[5] An overview of criticism of flexicurity nexus is available also in Bredgaard and Larsen (2007).

in 2007 presented four pathways to flexicurity: i) tackling contractual segmentation; ii) developing flexicurity within firms and offering transition security; iii) tackling skills and opportunity gaps among the workforce; and iv) improving opportunities for benefit recipients and informally employed workers. In the same year the EC (2007b) translated pathways into four policy components:

1. **Flexible and reliable contractual arrangements**, both for employers and employees, ensured through modern labour laws and work organization.

2. **Comprehensive LLL strategies** to address challenges of rapid technological development and innovation.[6] LLL presents a crucial factor for keeping up productivity levels, competitiveness of firms and long-term employability of workers through continuous investment in skills.

3. **Effective ALMPs** to help people to cope with rapid change, facilitate transitions to employment through job placement services and programmes, improve efficiency of job match matching and contribute to the reduction of unemployment.

4. **Modern social security systems** to provide for adequate UBs, which would act as a safety net during job changes and would not pull people out of the labour market. This also includes provisions that help people to combine private and work responsibilities.

EC (2007b) stresses that crucial preconditions for effective implementation of the above mentioned policies are involvement of all social partners and well-established social dialogue. Furthermore, these flexicurity policies should be pursued in a wider context of sound macro- and microeconomic policies and embedded in a wider framework of labour market regulation and employment rights (European Expert Group on Flexicurity, 2007). It should be also taken into consideration that flexicurity is not a uniform one single model, but it should be shaped for every national situation individually.

PREVIOUS STUDIES ON FLEXICURITY COMPONENTS AND THEIR EFFECTS

In this section we present a brief overview of empirical studies on the relations between flexicurity components and labour market performance. We focus on the following flexicurity variables: EPL index, LLL programmes, ALMPs and both PLMPs and UBs.

Employment protection legislation

EPL and its effects has been a subject of a large body of theoretical and empirical literature. For instance, Kosi and Bojnec (2012) explained that EPL theoretically affects industry dynamics and thus the labour market in different directions. On one hand, strict EPL prevents a firm from firing its employees (or makes it costly to do so) and in turn inhibits business and job creation. On the other hand, it stimulates employees to invest in firm- or job specific human capital. Nevertheless, economists have not yet reached a consensus on the direction and magnitude of the association between EPL and labour market outcomes, especially with regard to unemployment.

As regards the impact of EPL on unemployment, Nickell et al. (2001) found that EPL affects structural unemployment, mainly through its impact on raising unemployment persistence. Similarly, Scarpetta (1996) and Elmeskov et al. (1998) showed that EPL increases structural unemployment and non-employment, especially for youth and long-

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[6] Intangible factors are deemed to be the fundamental source of competitive advantages in today's knowledge economy (Jerman et al., 2010).

term unemployed. Kugler and Saint-Paul (2004) found that restrictions on firing reduced incentives for firms to hire unemployed and lengthen unemployment spells for workers in the United States. No significant effect on unemployment was found, for example, in the studies performed by Baker et al. (2004), Belot and van Ours (2004), Heckman and Pages (2000) and OECD (1999).

Concerning the effect of EPL on employment, OECD (2004) argued that it is possible to detect a negative relationship between strict EPL and employment rates of youth and prime-age women, whereas links to the employment rates of other groups may be positive. Schivardi and Torrini (2008) found only modest evidence that strict EPL reduced firm incentives to increase employment in Italian firms. Also Boeri and Jimeno (2005) and Kugler and Pica (2008) reported about negative effects of strict EPL on job turnover in Italian firms. Stricter employment regulations, namely, may decrease firms' business expectations, which may reduce their willingness to employ (Stubelj, 2010). Recent analyses of gross worker and job flows performed with the use of difference-in-differences estimators on a cross-section of industry-level data showed that strict dismissal regulations reduce job turnover or gross worker flows, by which the negative relationship is stronger in industries where the need for labour reallocation is higher (see Micco and Pages, 2006; Bassanini et al., 2010; Haltiwanger et al., 2010; Cingano et al., 2010). Reduced job and worker flows result in worse job opportunities for workers, whereas their association with employment levels is ambiguous (for overview of studies see OECD, 2010).

Lifelong learning

Labour market effects of LLL have been subjected to less research. Based on the sample of 19 countries, the OECD (2004) showed that individuals, especially women, older and low-paid workers, who received training, recorded, on average, lower unemployment rates and thereby greater chances of keeping their employment than their non-trained counterparts. In addition, trained workers enjoyed relatively good re-employment chances and tended to quit for better jobs more often and separated less often against their will. Likewise, overview in Employment in Europe 2006 report showed that high participation in LLL positively associates with high employment and low long-term unemployment (EC, 2006). These findings were confirmed also on country levels. For illustration, Jenkins et al. (2003) analysed the impact of participation in LLL programmes on employment prospects in the United Kingdom. Authors showed that British workers who were out of the labour market at the beginning of the 1990s were more likely to be in work in 2000 if they had acquired a formal qualification in the interim. Dieckhoff (2007) showed that continued training had a significant positive effect on transition from unemployment to employment in Germany, Denmark and in the United Kingdom and strong effects on the probability of transition into higher-level occupations in Germany and Denmark.[7]

Active labour market policies

ALMPs and EPL should be understood as complementary, as ALMPs, to some extent, reduce negative labour market outcomes effects caused by employment protection regulations (de Groot and Elhorst, 2010). Namely, properly designed ALMPs can reduce unemployment by improving job matching efficiency and skills of unemployed (see Bassanini and Duval, 2006). Positive effects of ALMPs on reducing unemployment were confirmed by several macroeconomic

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[7] On similar issue for Slovene managers see also Bertoncelj and Kovac (2009) and Bertoncelj (2010).

studies, however they disagree on the magnitude of the effect (see Scarpetta, 1996; Elmeskov et al., 1998; Nickell and Layard, 1999; Blanchard and Wolfers, 2000; Boone and van Ours, 2004; Bassanini and Duval, 2006; Fialová and Schneider, 2009).

With regard to the type of ALMPs employed, recent meta-analysis of 97 studies on ALMPs, conducted by Card et al. (2010), showed that subsidized public sector employment programmes are less effective compared to other ALMPs. Additionally, authors showed that classroom and on-the-job training programmes record positive medium-term effects on labour market outcomes, however are ineffective in the short-term. Similar findings were reported also by earlier overviews of literature, including Heckman et al. (1999) and Kluve and Schmidt (2002). On the contrary, Calmfors et al. (2001) found that labour market retraining in Sweden had no or had negative effects on employment. Munch and Skipper (2003) argued that public job training programmes in Denmark reduced the effort of unemployed to find regular jobs and therefore lead to so called locking-in effect. Similar findings (for OECD countries) were presented also by Martin and Grubb (2001). Likewise, Hujer et al. (2009) showed that labour market programmes had no positive effects on outflows from unemployment in Western Germany.

Passive labour market policies and unemployment benefits

PLMPs have an ambiguous effect on labour market performance. On one hand, they are useful for protecting the standard of unemployed, whereas on the other, they can lead to job matching inefficiency and to worker and job flows decline, mostly due to reduced job search intensity and motivation of unemployed (see Fialová and Schneider, 2009). If we concentrate on UBs (as a prevailing part of the PLMPs), they can affect labour market performance through various channels, including job search intensity, reservation wages, wage bargaining process, level of riskiness, and productivity of newly created jobs. Most microeconometric studies found that generous UBs (in terms of duration and benefit level) increase the duration of unemployment spells (for surveys of literature see Krueger and Meyer, 2002; Holmlund, 1998; OECD, 2010). For example, van Ours and Vodopivec (2008) showed that reduction of potential UBs duration in Slovenia contributed to significant reduction of unemployment spells of benefit recipients and therefore to increased probability to take a job, without compromising on the quality of the post-unemployment job as measured by wage level, duration of job, and type of employment (regular vs. fixed-term). About minor, and sometimes insignificant, UBs effects on job match quality and on creation of higher productivity jobs reported also Lalive (2007) and Caliendo et al. (2009). Boeri and Garibaldi (2009) confirmed a negative relationship between average gross replacement rates and employment-unemployment transitions also on a cross-country level. In similar vein, Scarpetta (1996), Elmeskov et al. (1998) and Blanchard and Wolfers (2000) reported on significant positive impact of various measures of UBs generosity on unemployment.[8] However, as stated by Bassanini and Duval (2006), the undesirable impact of generous UBs and other PLMPs on labour market performance could be mitigated by increased investments in ALMPs, especially in activation measures.

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[8] Besides this reasoning, we also have to take into account the possibility of benefits' fraud, resulting in increased shadow economy. Namely, people would tend to stay officially unemployed and collect UBs, whereas they would be active (employed) in the shadow economy. Although the issue of shadow economy is not part of the paper, Nastav and Bojnec (2008) and Nastav (2009) clearly indicate that shadow economy has a direct and indirect (through UBs and other LMPs) effect on the labour market.

OVERVIEW OF FLEXICURITY COMPONENTS

In order to provide grounds for further empirical analysis, we firstly present an overview of descriptive statistics on performance of the EU Member States with regard to flexicurity policy components. Furthermore, we seek for potential correlations between studied policy components and labour market outcomes (i.e., employ-

ment, unemployment and long-term unemployment rate). Data needed for analysis were mostly obtained from the OECD database (OECD.Stat, 2011), Eurostat (2011), the ILO database and official reports of the OECD (2011a, b) and the EC (2011).

Employment protection legislation

As can be seen from Table 1, EPL strictness varies greatly among the EU Member

Table 1.
EPL index in the EU Member States, 1990 and 2008

OECD methodology[a]	Version 1			Version 3
Country[b]	1990	2008	Change 1990–2008	2008
Austria	2.2	1.9	− 0.3	**2.4**
Belgium	3.2	2.2	− 1.0	**2.6**
Bulgaria[c]	:	:	:	**2.0**
Czech Republic	1.9	2.0	0.1	**2.3**
Denmark	2.4	1.5	− 0.9	**1.9**
Estonia	1.9	2.1	0.2	**2.4**
Finland	2.3	2.0	− 0.3	**2.3**
France	3.0	3.1	0.1	**3.0**
Germany	3.2	2.1	− 1.1	**2.6**
Greece	3.5	2.7	− 0.8	**3.0**
Hungary	1.3	1.7	0.4	**2.1**
Ireland	0.9	1.1	0.2	**1.4**
Italy	3.6	1.9	− 1.7	**2.6**
Latvia	1.5	2.1	0.6	**2.4**
Lithuania	1.9	2.6	0.7	**2.6**
Luxembourg	:	:	:	**3.4**
Netherlands	2.7	2.0	− 0.7	**2.2**
Poland	1.4	1.9	0.5	**2.4**
Romania[d]	:	:	:	**2.8**
Portugal	4.1	3.2	− 0.9	**3.1**
Slovak Republic	1.8	1.4	− 0.4	**2.1**
Slovenia	4.1	2.5	− 1.6	**2.8**
Spain	3.8	3.0	− 0.8	**3.1**
Sweden	3.5	1.9	− 1.6	**2.1**
United Kingdom	0.6	0.8	0.2	**1.1**

Notes:
[a] Version 1 of the OECD methodology calculates total EPL index as an unweighted average of the sub-indicators for regular and temporary contracts, whereas Version 3 as a weighted sum of the sub-indicators for regular and temporary contracts and collective dismissals (for more details see OECD, 2011a).
[b] Data for Cyprus and Malta are not available.
[c] Data for 2004.
[d] Data for 2006.
Countries included in the panel regression analyses are written in italics.
: no data available
Sources: Muravyev, 2010; OECD.Stat, 2011; Tonin, 2009; Vasilica and Mladen, 2009; Vodopivec et al., 2007.
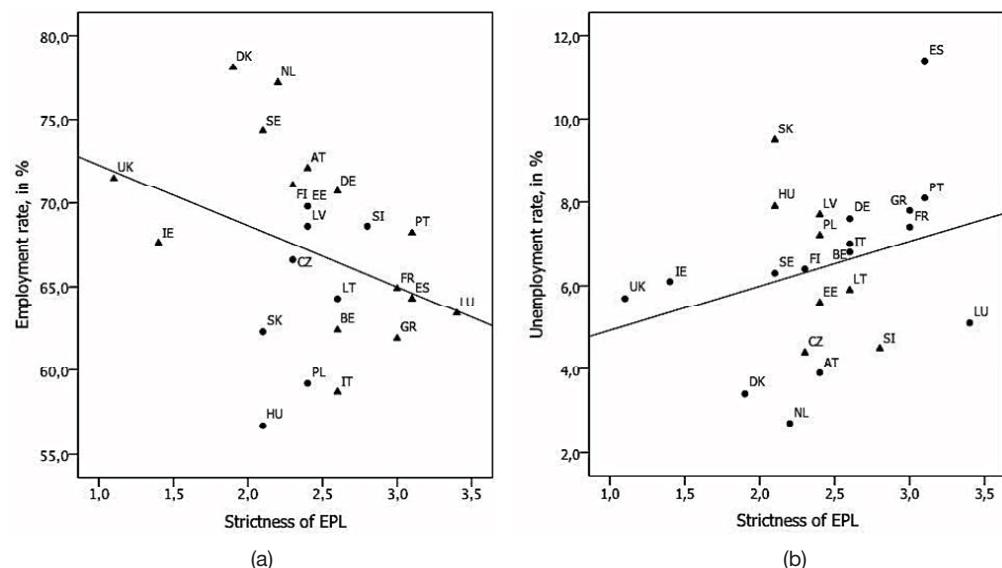
States.[9] According to data for 2008, the regulation is at most rigid in Luxembourg and in Southern or Mediterranean European countries and becomes more liberal when moving to Scandinavian countries. On the contrary, employment regulations are the most flexible in Anglo-Saxon countries, i.e., in the United Kingdom and Ireland (see Laporšek and Dolenc, 2011).

Strictness of employment regulation converged across EU countries over the past 18 years (see OECD, 2004). The process occurred mainly due to easing of regulation in countries where EPL was relatively strict at the end of 1980s. As can be seen from Table 1, majority of countries with

rather high EPL index values at the beginning of the 1990s significantly liberalized employment legislation, mostly in the field of temporary employment. On the contrary, some countries that in the early 1990s employed flexible employment regulations, over the last two decades slightly increased their EPL index.

Figure 1 examines bivariate associations between EPL and employment and unemployment rate. Scatterplots provide an indication that EPL associates with lower employment rate, while the relationship between EPL and unemployment rate is negative. However, both correlations are statistically insignificant at 5% level of significance.

Figure 1.

Strictness of EPL (version 3) vs. employment rate (a) and unemployment rate (b) in the EU countries, 2008

(a)   (b)

Legend: EU-15; NMS.

Notes: For both studied relations we performed linear regression analyses. Regression estimates are as follows:
    Figure 1(a): $y = 75.927 - 3.646\ EPL$; $R^2 = 0.12$
    Figure 1(b): $y = 3.865 + 1.065\ EPL$; $R^2 = 0.08$
Source: authors' calculations.

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[9] EPL index presents a measure of labour market flexibility and covers three different aspects of employment protection: (i) individual dismissal of workers with regular contracts; (ii) additional costs for collective dismissals; and (iii) regulation on temporary contracts. Until today OECD presented three versions of EPL index calculations (see OECD, 2011a).
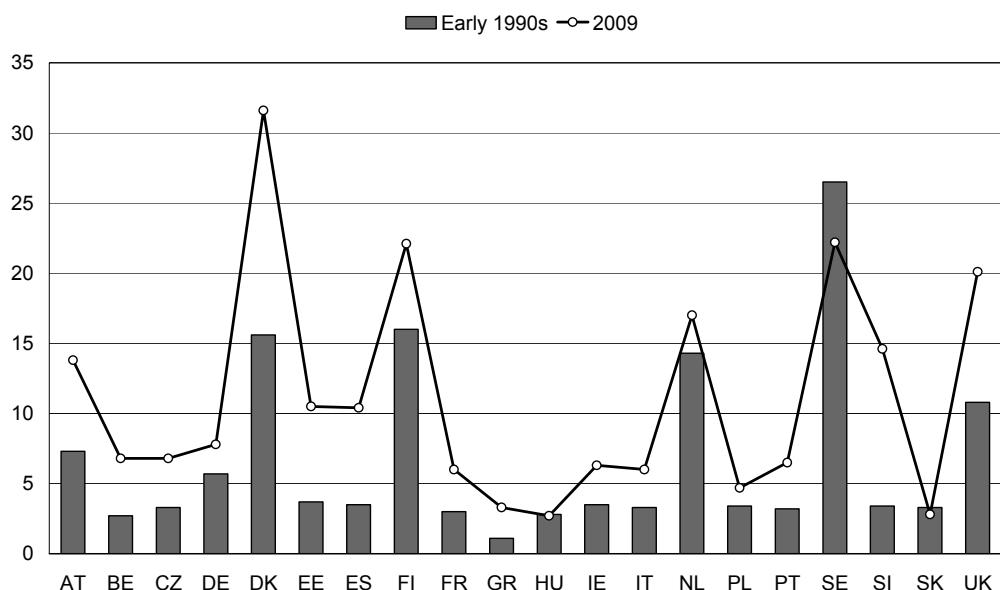
Lifelong learning

Data on participation of adults in LLL programmes point on a large gap and uneven implementation of these programmes across EU countries. As can be seen from Figure 2, the gap has not been reduced considerably over the last 19 years, although in majority of countries the level of awareness about the importance of LLL increased. The weakest in this field remain the NMS, probably due to economic and labour market developments during the transition period. More successful in implementing LLL policies are Continental EU countries and especially Nordic countries.

As regards the relation between participation in LLL and employment, Figure 3 demonstrates that investments in creation of such programmes may have a stimulating effect on further employability of workers, particularly those with lower skills. In similar vein, analysis suggests a negative relation between participation in LLL programmes and long-term unemployment, showing that the EU countries with higher share of adults involved in LLL programmes have, in general, lower long-term unemployment rate.
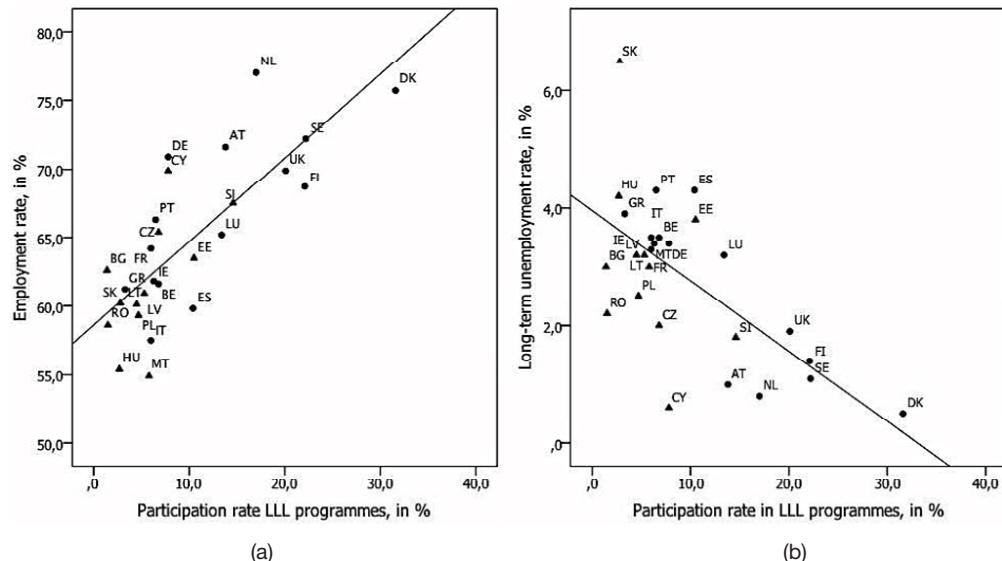
Figure 2.
Participation rate in LLL in the early 1990s and 2009

Source: authors' calculations.

Figure 3.
Participation rate in LLL vs. employment rate (a) and long-term unemployment rate (b), EU-27, in %, 2009

(a)   (b)

Legend: EU-15; NMS.
Notes: For both studied relations we performed linear regression analyses. Regression estimates are as follows:
Figure 3(a): $y = 58.606 + 0.610\ LLL$; $R^2 = 0.59$
Figure 3(b): $y = 3.954 – 0.119\ LLL$; $R^2 = 0.41$
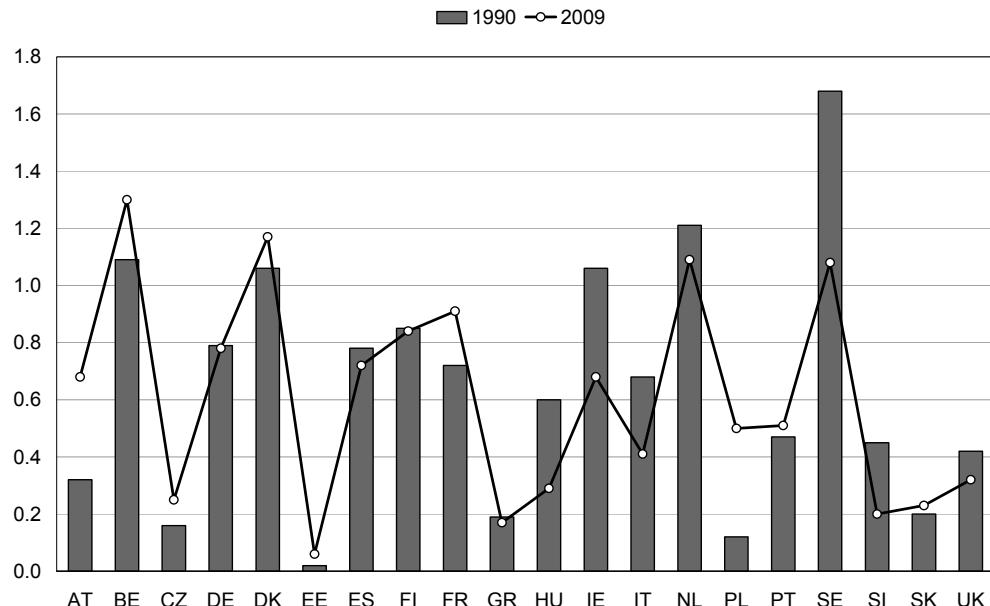Source: authors' calculations.

Active labour market policies

As can be seen in Figure 4, only few countries increased expenditures for ALMPs during the last two decades, by which the increase was in most cases only minor. The level of expenditures therefore remains low, especially among the NMS. For comparison, old EU Member States in 2009 earmarked to ALMPs, on average, 0.63% of GDP (or 0.10% of GDP per 1 per-centage point of unemployment), whereas the NMS only 0.25% of GDP (or 0.03% of GDP per 1 percentage point of unemployment).[10] Expenditures for ALMPs are lower in countries with stricter EPL, yet the relation is not statistically significant. Rather low is also the share of expenditures for ALMPs among all expenditures for labour market policies, as it in 2009 amounted, on average, 29.1%.

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[10] Difference between groups of countries is according to Kruskal-Wallis non-parametric test statistically significant at 1% significance level.

Figure 4.
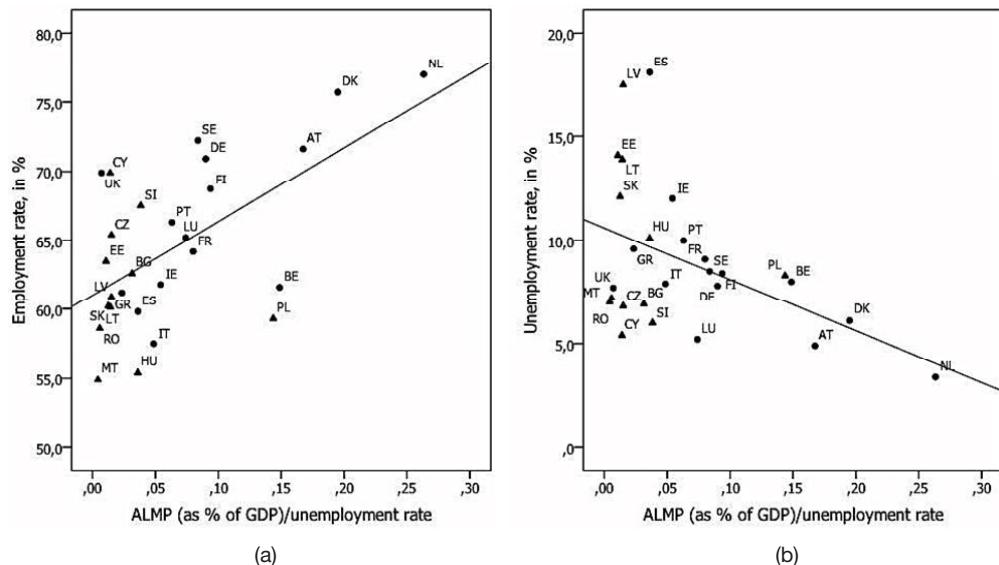*Expenditure for ALMPs, as % of GDP, 1990 and 2009*

Source: authors' calculations.

ALMPs aim to enhance human capital, to ensure employability of workers and to facilitate unemployment-employment transitions. This is reflected in their correlation with labour market outcomes. As can be seen from Figure 5 and data for 2009, countries with higher level of expenditures for ALMPs record lower unemployment rate and, on the other hand, higher employment rate than countries, where expenditures are lower. Correlations are statistically significant at 5% level of significance.

Figure 5.
Expenditures for ALMPs vs. employment rate (a) and unemployment rate (b) in the EU-27, 2009

(a)   (b)

Legend: EU-15; NMS.
Notes: For both studied relations we performed linear regression analyses. Regression estimates are as follows:
      Figure 5(a): $y = 61.022 + 53.291\ ALMP/UR$; $R^2 = 0.36$
      Figure 5(b): $y = 10.952 - 24.863\ ALMP/UR$; $R^2 = 0.21$
Source: authors' calculations.

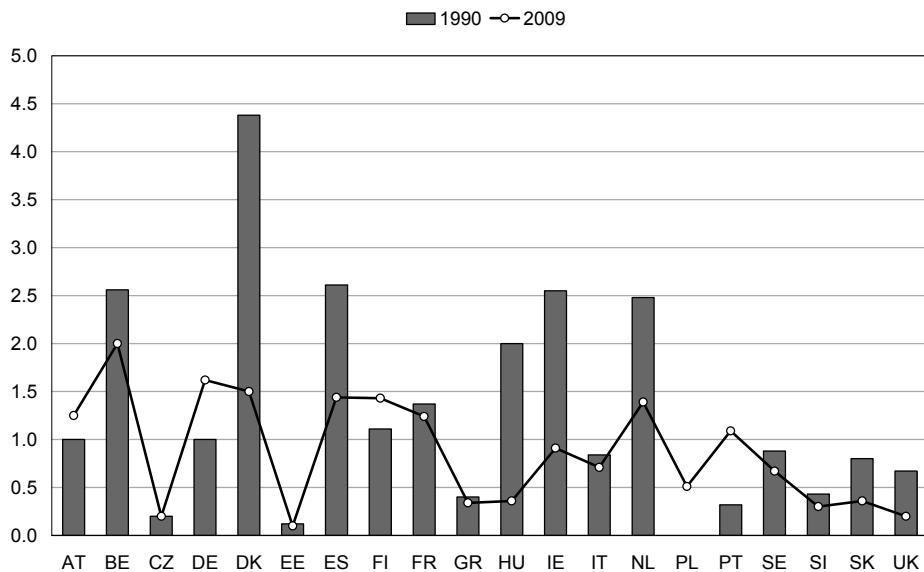## Passive labour market policies and unemployment benefits

UBs are together with early retirement schemes classified under the PLMPs.[11] Compared to the 1990, the level of expenditures for PLMPs decreased in most of the studied countries (see Figure 6), indicating a potential fall in income support generosity. The decline in PLMPs expenditures was especially prominent in Denmark, yet, it was partly compensated with an increase in expenditures for ALMPs. Similarly as with ALMPs, the most generous countries in terms of PLMPs include Nordic countries along Belgium and Germany.

Associations between expenditures for PLMPs and labour market outcomes run in the same direction as in previous, ALMPs case. Namely, Figure 7 proposes that high expenditures for PLMPs are, in general, related with higher employment rates and, on the other hand, with lower unemployment rates. Nevertheless, these relations may be doubtful from a theoretical perspective and may arise from reverse causality. Namely, richer countries can afford higher expenditures for PLMPs[12] and at the same time achieve good labour market performance.

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[11] As the data on the share of PLMPs devoted to UBs are not available for the entire studied period, we present data on total expenditures for PLMPs.
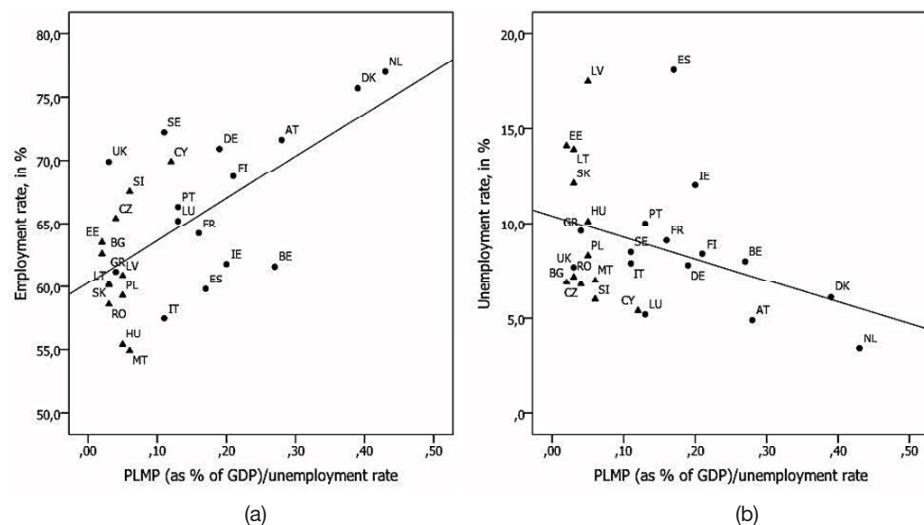
[12] We find in the analysis that countries with higher GDP p.c. PPP have higher expenditures for PLMPs (relation is statistically significant at 5% level of significance); results are available on request.

Figure 6.
Expenditure for PLMPs, as % of GDP, 1990 and 2009

Source: authors' calculations.

Figure 7.
Expenditures for PLMPs vs. employment rate (a) and unemployment rate (b) in the EU-27, 2009

(a)   (b)

Legend: EU-15; NMS.
Notes: For both studied relations we performed linear regression analyses. Regression estimates are as follows:
Figure 7(a): $y = 60.291 + 33.445$ PLMP/UR; $R^2 = 0.40$
        Figure 7(b): $y = 10.394 - 11.331$ PLMP/UR; $R^2 = 0.12$
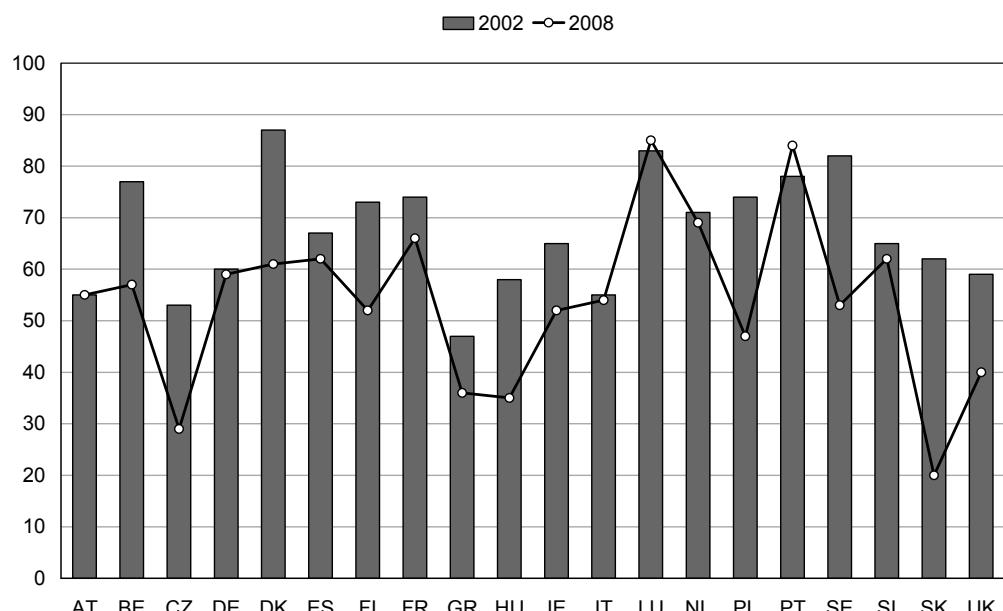Source: authors' calculations.

Commonly used indicator of UBs generosity is also net replacement rate for initial unemployment (NRR).[13] It measures the effect of the move from employment to unemployment on household incomes. On average and irrespectively the family type, NRR is lower for those with higher pre-unemployment wages, meaning that when moved to unemployment those with lowest pre-unemployment wage lose (financially) least. On average, at the EU level, those with pre-unemployment wage at the level of 67% of average wage lost 30% of previous income in 2009, whereas those with pre-unemployment wage at the level of 150% of average wage lost almost 40% or 50% of previous income. Data show that after five years of unemployment NRR declines, although in some countries still achieves high levels. Regarding the duration of UBs, the NMS mostly provide benefits up to maximum duration of 12 months (with exception of Slovenia), whereas, on average, possible entitlement to UBs lasts longer, in Belgium even indefinitely (for more details see Laporšek and Dolenc, 2011).

Comparing to the early 2000s, majority of the EU Member States reduced the replacement rate, therefore reducing the generosity of UBs. Despite, workers are at most secure in Nordic and some Continental EU countries, yet the lowest replacement rates are recorded among the NMS (see Figure 8).

Figure 8.
NRR for the first seven months of unemployment, 2002 and 2008

Note: Data for Italy in 2002 refer to the first 12 months of unemployment.
Sources: EC, 2012; OECD, 2011b; OECD.Stat, 2011; authors' calculations.

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[13] NRR is defined as a ratio of net income while out of work to net income while in work. If NRR exceeds 100 %, the unemployed person is not expected (at least not on short-term basis) to be encouraged to move out of unemployment, because in-work earnings are smaller than out-of-work incomes or (alternatively) when moving to unemployment the incomes would increase and not (as usually) decrease (Dolenc and Vodopivec, 2005).

METHODOLOGY AND DATA

Most of the papers focus on theoretical aspects of flexicurity (see for example, Wilthagen and Tros, 2004; Madsen, 2007; European Expert Group on Flexicurity, 2007), whereas only few investigate the empirical effects of all flexicurity components, simultaneously, on labour market outcomes (see, for example, de Groot and Elhorst, 2010; Tangian, 2010). In the continuation of this paper we in more detail examine the relationships between labour market outcomes (i.e., employment, unemployment and long-term unemployment rate) and four flexicurity elements that represent the underlying fundamentals of the concept within the EU: (1) EPL to present flexibility of contractual arrangements; (2) participation of adults in LLL programmes; (3) government expenditures for ALMPs; and (4) government expenditures for PLMPs as a proxy of generosity income replacement policies during unemployment (i.e., UBs). Relations were estimated using panel regression analysis, performed on the sample of 20 EU countries over the 1990–2008 period.[14,15] The basic regression function had the following specifications:

$$X_{i,t} = \alpha_0 + \Psi \begin{bmatrix} EPL_{i,t} \\ LLL_{i,t} \\ ALMP_{i,t} \\ PLMP_{i,t} \end{bmatrix} + \Upsilon \begin{bmatrix} TW_{i,t} \\ TUD_{i,t} \\ GDPpc_{i,t} \\ GDPg_{i,t} \end{bmatrix} + \varepsilon_{i,t}, \quad (1)$$

where $X_{i,t}$ denotes employment rate, unemployment rate and long-term unemployment rate in subsequent regression analyses.[16] *EPL* refers to overall EPL index (according to the OECD Version 1) in country *i* in time *t*, *LLL* is participation in LLL programmes, *ALMP* refers to expenditures for active employment programmes as % of gross domestic product, yet *PLMP* presents expenditures for passive employment policies (as % of GDP). Both *ALMP* and *PLMP* were normalized to the size of unemployment. In order to control for labour market situation, we include tax wedge (*TW*) for single person without children earning average wage as a measure of labour taxation and trade union density (*TUD*) as a measure of trade union's presence. As a control for differences in macroeconomic environment and development we use GDP at purchasing power parity per capita (*GDPpc*) and GDP growth (*GDPg*). Ψ and Υ are vectors of regression coefficients, measuring, respectfully, the effect of explanatory variables and the effect of control variables. Parameter $\varepsilon_{i,t}$ refers to random error.

Following the strategy of Bertola et al. (2001), we re-estimated the above basic regression function with inclusion of year dummies (vector Λ). In this way we take into account effects that may influence all countries in a given year in the same way (for example, world-wide shocks) (see Wooldridge, 2002):

$$X_{i,t} = \alpha_0 + \Psi \begin{bmatrix} EPL_{i,t} \\ LLL_{i,t} \\ ALMP_{i,t} \\ PLMP_{i,t} \end{bmatrix} + \Upsilon \begin{bmatrix} TW_{i,t} \\ TUD_{i,t} \\ GDPpc_{i,t} \\ GDPg_{i,t} \end{bmatrix} + \Lambda \begin{bmatrix} \text{Year 1991} \\ \vdots \\ \text{Year 2008} \end{bmatrix} + \varepsilon_{i,t}. (2)$$

To summarize, in the panel regression analysis we differentiated between two

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[14] The panel included Austria, Belgium, Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Sweden, Slovenia, Slovak Republic and the United Kingdom. Other EU Member States were left out due to the lack of data.

[15] Decision on the length of studied period was motivated by two facts: i) availability of data for the NMS included in the analysis; ii) going further back in the past would not bring clear results in most of the NMS due to changed political and economic situation.

[16] Data on employment, unemployment and long-term unemployment rate were collected on the basis of Labour Force Surveys and refer to the age group 15 to 64.

model specifications, i.e., with and without control for year effects. In addition, relations between flexicurity policies and labour market performance were (across different model specifications) estimated both using fixed and random effects. With the use of fixed effects we controlled for country-specific effects. Yet, due to the short time series and possible low variation in data for EPL strictness, fixed effects estimations could be imprecise. On the other hand, random effects estimations allowed us to assume that variations across countries (or time) are random and uncorrelated with the independent variable, resulting also in smaller standard errors than fixed effects. However, if explanatory variables are correlated with country's error term, the random effects could lead to biased estimations (see Wooldridge, 2002). Following the strategy applied also by Heckman and Pages (2000), we therefore performed and compared both fixed and random effects estimations and by that tried to avoid biases that could arise from different estimations methodologies.[17] All regression models were controlled for heteroskedacity and autocorrelation using robust standard errors.[18]

Regarding the data, missing estimations for EPL index for Slovenia were obtained from Vodopivec et al. (2007), whereas estimations for Estonia, Latvia and Lithuania from Muravyev (2010). Missing historical time series for expenditures for ALMPs, PLMPs and labour taxation of average worker were collected from the CEP-OECD institutions dataset (Nickell, 2006). Time series data for trade union density were obtained from Visser (2011).[19]

PANEL REGRESSION ESTIMATES

An overview of flexicurity policies in Section 4 pointed on the existence of potential relations between chosen individual flexicurity components and labour market outcomes. In this section we are expanding these analyses by estimating the association between all four flexicurity components and various labour market outcomes. Relations were evaluated using panel regression analyses conducted on the panel of 20 European countries over the 1990–2008 period. Estimation results are summarized in Table 2. For each of the dependent variables we present both fixed and random effects estimates, by which we differentiate between two types of model specifications: without and with control for year effects. A detailed explanation of the methodological scope of the panel regression analyses is available in Section 5.[20]

The first two columns of Table 2 present estimates on the association between flexicurity variables and employment rate among the EU countries. As can be seen, regression estimates are similar across different estimation methodologies and model specifications. On overall, estimates suggest statistically significant negative relation between EPL index and employment rate, indicating that rigid employment regulations reduce willingness of firms to hire new

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[17] The estimates of Hausman test showed that fixed effects models are more appropriate for analysis. However, to avoid biases and due to possible low variation in EPL within countries we performed also an analysis with random effects.

[18] The presence of heteroskedacity and autocorrelation was confirmed by likelihood-ratio test and Wooldrige test, respectively. Statistics can be obtained from the authors.

[19] Missing data on participation of adults in LLL programmes in NMS within the 1990–1998 period were calculated using the trend line evaluation techniques.

[20] We have also tried another model specification with a control for differences between old and new (transition) EU Member States. Regression estimates did not differ a lot from results presented in this section. Results of the additional model specification can be obtained from the authors.

workers and by that lead to decline in the job turnover. On the other hand, regression estimates for government expenditures for ALMPs and participation rate in LLL are positive, suggesting that activation measures enhance human capital of workers and therefore increase their probability to employ. The analysis also suggests a statistically significant positive relation between passive employment measures and employment, possibly indicating the impact of PLMPs on raising the overall labour force participation rate. The re-estimation of the basic model (i.e., model 1) with inclusion of year dummies to control that all countries are in the same way affected by the worldwide shocks (see model 2) does not change the direction of the regression estimates and their statistical significance, confirming the robustness of our results. Second set of regression models studies the relation between flexicurity variables and unemployment rate. In contrast to previous models, estimates between different model specifications differ, especially with regard to EPL index. As can be seen from Table 2, when extending the baseline model with year dummies, regression estimates for employment regulation change their sign, remaining statistically insignificant. This is in line with theoretical and empirical literature, which reported on ambiguous findings on the impact of employment regulation strictness on labour market performance (for overview see OECD, 2004; Boeri and van Ours, 2008). This may be also related with several drawbacks of EPL as a measure of rigidity of labour market (for discussion on this issue see Boeri and van Ours, 2008).

As regards ALMPs, regression estimates (in both model specifications) suggest that countries with higher ALMPs have lower unemployment rate, *ceteris paribus*. This implies that ALMPs by enhancing workers' skills and knowledge improve their chances of getting work and chances of staying in employment. On desirable effects of ALMPs on reducing unemployment reported also other macroeconomic empirical studies (see for example, Boone and van Ours, 2004, Bassanini and Duval, 2006, Fialová and Schneider, 2009). On the other hand, the relation between PLMPs and unemployment tends to be positive, what is opposite to the results of the bivariate analysis performed in Section 4. Yet, the latter was conducted only on data for one year, i.e., 2009, when the labour markets started to feel the impacts of the economic crisis and were therefore confronted with an increasing unemployment. Nevertheless, the positive panel regression estimates between PLMPs and unemployment may imply that PLMPs, especially income replacement during unemployment, reduce search effort and/or increase reservation wages, resulting in a decline of unemployment-employment transitions. However, as suggested by Howell et al. (2007), positive correlation between unemployment and benefit replacement rates should be interpreted as a causality running from the former to the latter.

In the third set of regression models we observe associations between flexicurity policy components and long-term unemployment rate. Similarly as in the previous case, a negative relation can be observed between long-term unemployment and ALMPs and participation in LLL programmes. This again signifies the importance of effective ALMPs and LLL programmes, which through training, prequalification and other employment incentives reduce unemployment, especially in the long run. On the other hand, strictness of employment regulation and PLMPs positively associate with long-term unemployment, however relations are statistically insignificant.

Table 2.
Estimation results of the panel regression analyses

Dependent variable	Employment rate		Unemployment rate		Long-term unemployment rate	
Model	(1)	(2)	(3)	(4)	(5)	(6)
Fixed (within group) effects						
EPL index	−1.42**	−1.82**	−0.20	0.42	0.07	0.30
	(0.58)	(0.78)	(0.46)	(0.53)	(0.42)	(0.55)
Participation rate in LLL	0.02	0.04	0.03	−0.06	−0.02	−0.07**
	(0.07)	(0.05)	(0.05)	(0.05)	(0.03)	(0.04)
Expenditures for ALMPs/ unemployment rate	10.03***	9.82**	−10.96*	−8.91*	−4.21**	−3.43***
	(4.95)	(4.30)	(3.50)	(3.02)	(1.96)	(1.82)
Expenditures for PLMPs/ unemployment rate	11.28*	10.63*	0.34	1.64	0.26	0.55
	(2.38)	(2.26)	(1.68)	(1.94)	(1.59)	(1.57)
Trade union density	0.13*	0.13**	−0.07	−0.05	−0.08**	−0.07***
	(0.04)	(0.05)	(0.04)	(0.04)	(0.03)	(0.03)
Tax wedge	−0.08	−0.07	0.23*	0.16**	0.16*	0.11***
	(0.06)	(0.07)	(0.06)	(0.07)	(0.04)	(0.06)
Standardized GDP per capita PPP	6.23×10^{-4}	6.60×10^{-4}	-0.31×10^{-3}	-0.52×10^{-3}	-0.22×10^{-3}	-0.35×10^{-3}
	0.75×10^{-4}	0.11×10^{-3}	0.52×10^{-4}	0.99×10^{-4}	0.43×10^{-4}	0.91×10^{-4}
GDP growth	−0.17**	−0.14**	0.04	−0.01	0.01	−0.02
	(0.08)	(0.08)	(0.07)	(0.07)	(0.03)	(0.04)
Constant	45.49*	46.63*	10.99**	13.95*	6.35	9.83***
	(6.25)	(5.26)	(4.75)	(5.61)	(4.03)	(5.35)
R²:	0.39	0.39	0.27	0.27	0.30	0.29
Random effects GLS						
EPL index	− 1.57*	−1.68**	−0.10	0.26	0.11	0.22
	(0.56)	(0.77)	(0.39)	(0.47)	(0.38)	(0.48)
Participation rate in LLL	0.03	0.03	0.05	−0.01	−0.01	−0.03
	(0.03)	(0.05)	(0.06)	(0.06)	(0.03)	(0.03)
Expenditures for ALMPs/ unemployment rate	9.76**	9.45**	−11.29*	−9.32*	−4.42**	−3.78**
	(4.84)	(4.34)	(3.39)	(3.02)	(1.80)	(1.72)
Expenditures for PLMPs/ unemployment rate	10.45*	10.35*	0.87	1.96	0.58	0.73
	(2.63)	(2.38)	(1.65)	(1.89)	(1.21)	(1.28)
Trade union density	0.11*	0.12**	−0.05	−0.04*	−0.06**	−0.05**
	(0.04)	(0.04)	(0.03)	(0.04)	(0.02)	(0.03)
Tax wedge	−0.13**	−0.15**	0.22*	0.20*	0.15*	0.15*
	(0.07)	(0.07)	(0.05)	(0.05)	(0.03)	(0.03)
GDP per capita	5.58×10^{-4}	4.92×10^{-4}	-0.27×10^{-3}	-0.36×10^{-3}	-0.18×10^{-3}	-0.21×10^{-3}
	0.74×10^{-4}	0.11×10^{-3}	0.36×10^{-4}	0.56×10^{-4}	0.35×10^{-4}	0.54×10^{-4}
GDP growth	−0.19**	−0.15***	0.07	0.02	0.04	0.01
	(0.08)	(0.08)	(0.07)	(0.07)	(0.03)	(0.02)
Constant	50.65*	53.98*	8.87**	8.16**	4.40	4.54
	(6.44)	(5.70)	(3.75)	(4.03)	(3.04)	(3.32)
R²:	0.41	0.43	0.29	0.29	0.30	0.31
Membership dummies	No	No	No	No	No	No
Year Dummies	No	Yes	No	Yes	No	Yes
No. of observations	377	377	377	377	377	377

Significance level: * 1%, **5%, ***10%. Robust standard errors reported within parentheses.
Source: authors' calculations.

Out of the remaining explanatory variables are of special interest also tax wedge and trade union density. Regarding the first, estimates show that labour taxation has a potential detrimental effect both on employment and unemployment rate. Namely, on one hand, we recorded a positive relation between labour taxation and employment rate and, on the other hand, yet stronger, negative association between tax wedge and both measures of unemployment (for further details on this issue see, for example, Dolenc and Laporšek, 2010 and Dolenc et. al., 2011). With respect to second institutional variable, findings suggest that the presence of trade unions (and through that higher level of workers protection) has favourable relation with both employment and unemployment (for details see, for example, Checchi et al., 2002).

CONCLUSIONS

The paper examines the issue of flexicurity in the EU Member States and studies relationships between flexicurity policy components and labour market outcomes. As flexicurity policy elements present complex entities, which are difficult to measure and compare between countries, we focus on four representative labour market institutions, one for each flexicurity component (i.e., EPL index, participation in LLL programmes, government expenditures for ALMPs and expenditures on PLMPs as a proxy for UBs), for 20 EU Member States over the 1990–2008 period.

The empirical estimates point on the existence of large gaps in the level of implementation of flexicurity policies across the EU Member States. To the idea of flexicurity at most adapt Nordic countries, which simultaneously record the highest employment protection flexibility and the highest investment in ALMPs and LLL programmes, while ensuring generous UBs. The most distant from the flexicurity idea are the NMS along Italy and Greece, where a particular problem present low expenses for ALMPs, unaware-

ness of LLL importance and low income replacement during unemployment. Low level of security of workers can be also observed among Anglo-Saxon countries, which are, on the other hand, characterised with the most flexible employment regulations. This is in line with Laporšek and Dolenc (2011), who also showed that countries with the highest level of compliance with the flexicurity concept record the highest labour market outcomes and vice versa.

The need of further development of flexicurity for labour market performance was confirmed also by the panel regression estimates. As the regression estimates were similar across fixed and random effects and across different model specifications, we can confirm robustness of our findings for each of the dependent variables. Concerning the employment rate, regression estimates suggest that it is negatively associated with the EPL index. This is in line with other studies which found that rigid employment regulations reduce willingness of firms to hire new workers (see Section 3). Negative relation between the two could be mitigated with ALMPs and LLL. As it follows from the estimates, such activation measures positively associate with employment rate. This may indicate that activation measures, aimed at enhancing human capital of workers, increase their probability to employ. These findings were implicitly confirmed also by estimates for unemployment and long-term unemployment rates. Although they give ambiguous results for EPL (probably due to drawbacks related to the measure of employment regulation rigidity), they show that both expenditures for ALMPs and participation in LLL programmes may be associated with lower unemployment and long-term unemployment rate. This again confirms that these programmes, by encouraging investments in skills, prequalification and knowledge, increase the quality of human capital and therefore facilitate transition to employment and increase the possibility of re-em-

ployment. On the other hand, the relation between unemployment and expenditures for PLMPs tends to be positive, implying that generous income replacements for unemployment may influence the intensity of flows from unemployment to employment.

To conclude, our findings confirm that balanced flexicurity policies are of a special importance for further development of European labour markets and economies. European countries should continue with the flexibilisation of employment regulation, simultaneously enhancing the security system and, most importantly, developing comprehensive strategies of LLL and effective ALMPs, together with conditions for their implementation. Most importantly, each of the EU countries must shape its own flexicurity pathway that best suits the specific needs of its labour market, with special attention put on finding the right balance between the needs of both employees and employers and at the same time assuring macroeconomic stability. Appropriate and balanced flexicurity policies are of especial importance for the labour market developments in times of crises. Further research could therefore try to evaluate how have countries with different levels of compliance to flexicurity concept responded to the current economic and financial crisis.

Findings of this paper present an important contribution to the existing research on the effect of various labour market institutions on labour market performance. The added value of the paper, comparing to existing research, is the analysis of compliance to flexicurity and of the relation between its policy components and labour market outcomes, which includes also the NMS. The latter were due to lack of data left out of most existing research. Nevertheless, the paper still faces several problems. Firstly, lack of a uniform definition of flexicurity and, consequently, issue of shaping and selecting all-embracing indicator of a multidimensional policy of flexicurity.

Secondly, problems related to an effective measure of EPL rigidity, discussed also by Boeri and van Ours (2008). Furthermore, difficulties linked to obtaining reliable and appropriate measures of development of LLL programmes, especially among NMS. With regard to methodology, problems related to potential endogeneity or omission of relevant variables – consequently, we can not adequately define the direction of causality between flexicurity components and labour market performance, but merely their associations. In order to solve the causality problem, a study that in detail analyses labour market reforms with respect to flexicurity and their subsequent impact on labour market and economic outcomes is needed. This paper therefore presents an introduction to a more comprehensive study that would deal with these issues.

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129

Sažetak

UTJEČU LI MJERE FLEKSIGURNOSTI NA REZULTATE NA TRŽIŠTU RADA? ANALIZA ZEMALJA ČLANICA EU-a

Suzana Laporšek, Primož Dolenc

Fakultet za menadžment
Kopar, Slovenija

U radu se analizira pojam fleksigurnosti u državama članicama EU-a i proučava odnos između komponenata fleksigurnosti (npr. radno zakonodavstvo, programi cjeloživotnog učenja i aktivne i pasivne mjere tržišta rada) kao i učinak tržišta rada (npr. stope zaposlenosti, nezaposlenosti i dugoročne nezapolsenosti) u 20 zemalja članica EU-a tijekom razdoblja od 1990. do 2008. godine. Regresijske analize pokazale su da su troškovi za aktivne mjere zapošljavanja i sudjelovanje u programima cjeloživotnog učenja pozitivno povezani s rezultatima na tržištu rada jer povećavaju ljudski kapital radnika, pa stoga povećavaju i njihovu mogućnost zapošljavanja. S druge strane, velikodušne mjere pasivne politike na tržištu rada u negativnoj su korelaciji s prijelazima iz nezaposlenosti u zaposlenost. Manje su eksplicitni rezultati u pogledu odnosa sa strogoćom zakona o zaštiti prava radnika. Rezultati istraživanja ukazuju na važnost kreiranja uravnoteženih mjera fleksigurnosti za daljnji razvoj europskih tržišta rada i europskih gospodarstava.

Ključne riječi: fleksigurnost, rezultati na tržištu rada, mjere na tržištu rada, empirijska analiza, Europska unija.