

THE ANALYSIS OF FLEXICURITY IN THE EU MEMBER STATES

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Abstract

The purpose of this paper is to present the characteristics of labor markets in the EU Member States in terms of design and implementation of policy components of flexicurity, as well as to examine the relationship between flexicurity and labor productivity. The estimates of the characteristics of labor market flexibility and security, and flexicurity models in the EU are based on the descriptive statistics and cluster analysis. The impact of flexicurity on labor productivity is assessed using principal component analysis and linear regression analysis. The results of empirical analysis point on the existence of considerable differences in labor market flexibility and security across EU Member States. The least successful at simultaneous implementation of flexibility and security are New Member States, showing rigid labor market regulation at very low security of employees. On the other hand, the most balanced flexicurity policies, thus ensuring high levels of flexibility and security, can be found among Scandinavian countries. The latter, together with United Kingdom and Ireland, also achieve the highest macroeconomic performance. The positive impact of flexicurity on macroeconomic performance was confirmed by linear regression analysis, which showed a positive relationship between indicators of security in the labor market and labor productivity.

1. Introduction

The concept of flexicurity, based on finding the right balance between flexibility and security in working arrangements, is today one of the major employment policy priorities of the EU and its Member States. Namely, the principle of flexicurity presents a response to changes in national economies due to globalization processes, rapid technology development, demographic aging and labor market segmentation. According to the European Commission (2007a, p. 7), it can provide an answer to the dilemma on how to maintain and improve competitiveness while reinforcing European social model.

The objective of this paper is to briefly outline the concept of flexicurity and its importance within the EU employment agenda and to answer the following research questions:

1. What is the situation of the labor market in the EU Member States in terms of flexicurity?
2. How do EU Member States classify with regard to labor market flexibility and security? What are the differences in macroeconomic performance between flexicurity models?
3. What is the impact of labor market flexibility and security on the labor productivity in the EU?

In order to examine the labor market situation in terms of implementation of flexicurity policy components in the EU Member States we apply simple descriptive statistics. To identify groups of EU countries that are similar to each other with regard to labor market flexibility and security we use hierarchical cluster analysis (Ward's method). The characteristics of labor market flexibility and security of the obtained groups of countries and their macroeconomic performance are assessed by simple descriptive statistics, while the differences between groups of countries are examined by Mann-Whitney and Kruskal-Wallis tests. In the third part of the empirical analysis, we use principal component analysis to define factors of flexibility and security. The latter are used in linear regression analysis, by which we investigate the impact of labor market flexibility and security on the labor productivity in EU-25 in 2008.

The empirical analysis points on the existence of large differences in the level of implementation of policy components of flexicurity across EU Member States. The least successful in implementing flexicurity policies are New Member States (NMS), as they have very rigid labor market and very low security of employees. Labor market is even more rigid in Mediterranean countries; however they perform better in the area of security. The flexicurity policies are most balanced in the Scandinavian countries, which, together with United Kingdom and Ireland, classify among the most successful EU Member States with the highest employment rate and the lowest unemployment rates. The importance of flexicurity for macroeconomic performance of the EU Member States is confirmed by linear regression estimates, which showed

a positive relationship between indicators of security in the labor market and labor productivity.

The rest of the paper is structured in the following way. Section 2 briefly presents the concept of flexicurity and its importance for the EU employment policy, followed by the presentation of data and methodology in section 3. Section 4 discusses in detail the characteristics of flexicurity policy components in the EU Member States, identifies homogenous groups of EU countries according to labor market flexibility and security and studies the relationship between flexibility and security in the labor market and labor productivity. Section 5 concludes.

2. Theoretical background

2.1. The concept of flexicurity and its definition

The concept of flexicurity emphasizes that flexibility and security should not be perceived as contradictory, but as complementary and mutually supportive (European Commission, 2007a). It could be best seen as a system of joint and mutual risk management for workers and employers (European Expert Group on Flexicurity, 2007, p. 14). Namely, flexible labor market enables workers to combine work and private responsibilities, while enterprises need it to face the risk of weakening market position (due to increased competition) and the risk of quantitative and qualitative mismatch of labor supply (as a result of technical progress, demographic change and varying competences among workers). At the same time, labor market should ensure security in terms of protecting employees from losing their employment and enabling them to enter, remain and progress in employment through their life-cycle. On the other hand, employers want to establish stable employment relations with well-qualified (and loyal) workers, by which they can preserve and improve their market position and productivity.

The notion of flexicurity was first employed in Netherlands in the mid 1990s in the context of labor reform and preparation of the Flexibility and Security Act and the Act Concerning the Allocation of Workers via Intermediaries. The aims of these acts were to increase labor market flexibility by easing the rules for dismissal and rules for starting a temporary work agency and, at the same time, to generate higher level of security for employees in flexible jobs (Wilthagen and Tros, 2004; Keune and Jepsen, 2007, p. 5). Soon after that, the idea of flexicurity was taken up also by other European countries. The notion of flexicurity is today often linked to Danish “golden triangle”, which is a prime example of well-functioning flexicurity arrangement. The model combines flexible labor market (a high degree of occupational and geographical job mobility due to low employment protection), high social security (a generous system of unemployment benefits) and active labor market programs aimed at skill improvement and activation of unemployed (Madsen, 2006; OECD, 2004).

As the flexicurity is a relatively new term and, consequently, the literature is still developing, there is no universal definition of it. Nevertheless, we can find several (partially overlapping) definitions of flexicurity, within which three understandings

can be identified (Wilthagen and Tros, 2004; Madsen, 2006; Bredgaard and Larsen, 2007):

- as a *policy strategy* that synchronically and in a coordinated way enhances the labor market flexibility, employment and social security, especially for weaker groups in the labor market;
- as a *state of the labor market* that includes a *degree of job, employment, income and combination security, and a degree of numerical (both external and internal), functional and wage flexibility; and*
- as an *analytical tool* that can be used to analyze developments in flexibility and security, and to compare national labor market systems.

As we can see from the above short overview of the understandings of flexicurity, both flexibility and security are multi-dimensional concepts. In order to classify flexicurity policies, Wilthagen and Tros (2004, p. 7) constructed a matrix using four dimensions of flexibility (external-numerical, internal-numerical, functional and wage flexibility) and four dimensions of security (job, employment, income and combination security). The matrix can be used as a tool to identify different flexicurity policies and relations between flexibility and security in different national labor market regimes. However, 16 different combinations between flexibility and security, which should all lead to win-win situations on labor market, provoked several critics. For example, Keune and Jepsen (2006) believed that large number of combinations might render flexicurity as a vague or ambiguous concept. Tangian (2004a) and Bertozzi and Bonoli (2009) emphasized the question of measuring flexicurity dimensions. The overview of criticism of flexicurity nexus is available also in Bredgaard and Larsen (2007).

Another important perspective on flexicurity was presented by Tangian (2004b), who identified a liberal and trade-unionist view. According to the liberal view, flexicurity policies aim at increasing the competitiveness of European economies by their further liberalization. Enhancing security is, therefore, not the prime goal, but is rather a means to attain a deliberate compromise between the employers, who seek for the deregulation of labor markets, and the employees, who wish to protect their rights. From the viewpoint of trade unions, flexibilization of employment relations can be hardly compensated by social security benefits. Thus trade unions define flexicurity as “social protection for flexible work forces, which is an alternative to pure flexibilization and to a deregulation-only policy” (Tangian, 2004b, pp. 14-15).

The relationship between flexibility and security was studied also by Muffels and Luijkx (2005). The authors proposed two theses. The first, “trade-off” thesis presumes the negative relationship between flexibility and security, as it states that an increase in flexibility (due to increased market competition and the process of “skill-biased technical change”) endangers work security of employees, especially low-skilled, and increases instability of income. On the other hand, the “flexicurity” thesis presumes that due to the emergence of the “knowledge-based economy” there is a kind of “double bind”: high level of flexibility is required to compete successfully and to afford a

high level of employment security, which is a prerequisite for sustaining high levels of flexibility. Moreover, the authors showed that relationship between labor market flexibility and security in EU varies between different welfare regime types due to differences in traditions and labor market mechanisms and institutions.

2.2. Flexicurity in the European Union

Pursue for balance between flexibility and security has been present in the EU policy discourse since 1993 and is especially evident within the European Employment Strategy (Tros, 2004). As it is stated in the Decision of the European Union Council (2003/578/EC, pp. 13-21) on the revision of the Employment Guidelines, “providing the right balance between flexibility and security will help support the competitiveness of firms, increase quality and productivity at work and facilitate the adaptation of firms and workers to economic change”. The EU addressed the issue of flexibility and security more explicitly (by using the term flexicurity) in 2006 at the Informal Meeting of Ministers for Employment and Social Affairs. As the issue of flexicurity became one of the key elements of the European employment policy, the European Commission introduced common principles and pathways to flexicurity in 2007 (European Commission, 2007a), which should encourage Member States to implement the flexicurity policies, as this is of a key importance for inclusive growth in the EU.

The European Commission (2007a, p. 10) defined flexicurity as “an integrated strategy to enhance, at the same time, flexibility and security in the labor market”. This broad definition of flexicurity can be implemented across four policy components:

1. flexible and reliable contractual arrangements;
2. comprehensive lifelong learning;
3. effective active labor market policies; and
4. modern social security systems.

Economic analysis confirms that these four components can be mutually supportive, and improve employment (total, as well as for women, youth and older workers) at-risk-of-poverty rates and human capital (European Commission, 2007a, p. 12). However, it should be also taken into consideration that the crucial preconditions for developing flexicurity and making it work are supportive, productive and well-established social dialogue, mutual trust and highly developed industrial relations (European Expert Group on Flexicurity, 2007, p. 15).

As the Member States vary in their socio-economic, historical, cultural and institutional background, flexicurity can take a different form from country to country. Therefore, the European Commission (2007a) developed four typical pathways that reflect the concrete situation or challenge of any specific country: 1) tackling contractual segmentation; 2) developing flexicurity within the enterprise and offering transition security; 3) tackling skills and opportunity gaps among the workforce; 4) improving opportunities for benefit recipients and informally employed workers. Still, these flexicurity pathways should be pursued in a wider context of sound macro-

and microeconomic policies and embedded in a wider framework of labor market regulation and employment rights (European Expert Group on Flexicurity, 2007).

3. Data and methodology

The lack of uniform definition, multidimensional character of flexicurity concept and the problem of selection of all-embracing indicators are just few of the reasons why there is little empirical analyses and measurements of flexicurity as a uniform concept. The level of flexicurity and its implementation were studied and measured, for example, by Auer and Cazes (2003), Sperber (2005), Tangian (2004a, 2006a, b), European Commission (2006, 2007b), European Foundation for the Improvement of Living and Working Conditions (2007), Maselli (2010).

Our empirical analysis is divided into three parts. First, we examined the labor market situation in the EU Member States in terms of implementation of the four policy components of flexicurity (i.e. flexible and reliable contractual arrangements, comprehensive lifelong learning strategies, effective active labor market policies and modern social security system) by simple descriptive statistics. The existence of potential differences in variables between EU-15 and NMS was (due to small number of countries included in the analysis) determined with the Mann-Whitney test. The correlations between variables were examined by computing the Pearson coefficient.

In the second part of the empirical analysis we examined whether among observed EU Member States exist homogenous groups of countries with regard to the labor market flexibility and security, and what are their characteristics. To identify homogenous groups of countries we applied hierarchical cluster analysis based on Ward's method. Cluster analysis included the following key indicators of labor market flexibility and security:

- as a *measure of labor market flexibility*: strictness of employment protection; strictness of employment protection for permanent employees; strictness of employment protection for non-permanent employees; percentage of the temporary employed in total employment; and percentage of the part-time employed in total employment;
- as a *measure of security* in the labor market: percentage of the adult population (25-64 years) participating in education and training; expenditure on active labor market policies as a percentage of GDP; total expenditure for social protection as a percentage of GDP; and net replacement ratio for persons unemployed 60 months and more receiving social benefits (single person without children and 67% of average earnings).

This part of analysis followed the logic of the model of the European Commission (2007b). The novelty of our analysis compared to the analysis prepared by the European Commission is the use of the most recent data for 2008 (except for the variable total expenditure for social protection, where we used data for 2007) and the increased number of countries included in the analysis (25 EU Member States compared to 22).

On the basis of classification of countries obtained in the cluster analysis, we further examined whether groups of countries differ also in economic performance. We compared the obtained groups according to the GDP per capita, employment and unemployment rate, labor productivity and tax wedge. The differences between groups of countries were tested by Kruskal and Wallis nonparametric test (due to small number of countries included in the analysis).

The last part of the empirical analysis has been divided into three steps. Firstly, we performed principal component analysis (PCA), in which we included all the variables that were also used in the cluster analysis (see paragraph 3 of this section). According to the results of the PCA, we formed two components: flexibility and security. In the second step of the analysis, we examined whether there is a relationship between real labor productivity (expressed as GDP per hour worked) and factors of flexibility and security (obtained by the PCA), using simple linear regression analysis. As macroeconomic control variables we used GDP per capita and employment rate. In the third step, we used the regression coefficient of the security factor (obtained in the second step of the analysis) and score coefficients (obtained by the varimax rotation) of each of the variable included in the overall security factor. On the basis of these estimates, we calculated the effect of an increase in individual variable of security on labor productivity, at given GDP per capita and employment rate.

The data for empirical analysis were collected from official statistical databases of OECD (OECD.Stat, 2010), World Bank (Doing Business, 2010) and Eurostat (2010) and from the official reports of the European Commission (2007a and b, 2008a and b).

4. Empirical analysis

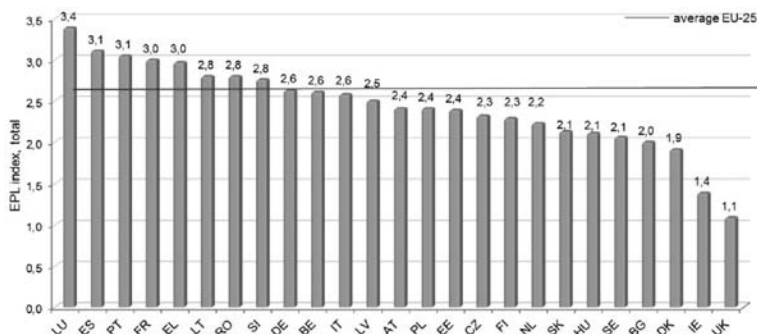
4.1. Partial analysis of the policy components of flexicurity in the European Union

4.1.1. Flexible and reliable contractual arrangements

One of the most commonly used indicators for international comparison of regulations of labor relations regulations is Employment Protection Legislation Index (EPL), developed by the OECD. The EPL index is compiled from 21 items¹, covering three different aspects of employment protection: (i) individual dismissal of workers with regular contracts; (ii) additional costs for collective dismissals; and (iii) regulation of temporary contracts. Index values are ranging from 0 (least stringent employment legislation) to 6 (most restrictive employment legislation) (OECD, 2004).

As it can be seen from Figure 1, the highest values of total EPL index in 2008 were reached by Luxembourg (3.4), Portugal and Spain (3.1), and Greece and France (3.0). On the other side, the most flexible employment regulation had United Kingdom (1.1), Ireland (1.4) and Denmark (1.9). Among the NMS the employment protection was most flexible in Hungary, Slovakia (2.1) and Bulgaria (2.0).

1 The data on EPL index for 2008 are in accordance with OECD version 3. Data for years before 2008 are available only in accordance with OECD version 2 (see OECD.Stat, 2010).



Notes:

The data on EPL index are not available for Malta and Cyprus. For Romania the data refer to the year 2006, whereas for Bulgaria, Lithuania and Latvia to the year 2004.

Figure 1: Total EPL index in the EU Member States, 2008

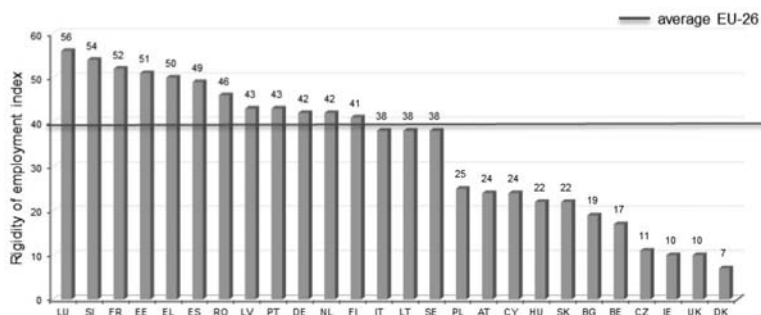
Sources: OECD.Stat, 2010; Tonin, 2009; Ciucă and Mladen, 2009; own calculation

As regards the scope of employment protection expressed by the EPL sub-indices, the EU Member States show considerable rigidity in the area of collective dismissal – the average value of index of collective dismissal for 2008 amounted 3.2 (the EU average value was considerably exceeded by Italy (4.9) and Belgium (4.1)). The average value of index on employment protection of regular workers amounted 2.4, while the average of index on regulation of temporary forms of employment amounted 2.2².

The World Bank developed the rigidity of employment index, composed of difficulty of rigidity index, rigidity of working hours index and difficulty of firing index. As can be seen from Figure 2, the employment legislation is most rigid in Luxembourg, Slovenia, France, Estonia and Greece (value of index amounts 50 or more), mainly due to difficulties of firing and rigidity of working hours. According to the World Bank’s methodology, employment legislation is the least rigid in Denmark, Ireland and United Kingdom, i.e. in countries that also record the lowest values of EPL index.

The level of labor market flexibility is also reflected by the share of temporary and part-time employment in total employment. The percentage of temporary employed (between 15 and 64 years of age) in total employment increased in most of the EU Member States (15) during the 1999-2009 period; the increase was especially pronounced in Poland (for 22 percentage points). In 2009, the share of temporary employed in total employment ranged from 1% in Romania to 26.4% in Poland, whereas at the EU-27 level the average amounted 10.8% (the share was higher in EU-15, however the differences between EU-15 and NMS-12 were not statistically significant at 95% confidence level). As it can be seen from Table 1, the share of temporary employment in total employment is especially high among young people (15-24 years of age): the

2 The average values of EPL sub-indices did not include data for Bulgaria, Cyprus, Latvia, Lithuania, Malta and Romania as they were not available for 2008.



Notes:

The value of rigidity of the employment index is not available for Malta.

Figure 2: The rigidity of employment index (0-100), 2009

Sources: Eurostat, 2010; own calculations

average in EU-27 in 2009 amounted 32.2% (which is 5% higher than the average in 1999). Young people are more exposed to temporary employment in “old” Member States: the average share of temporary employed was even 18.3% higher than in NMS-12 (the difference was statistically significant at 95% confidence level).

A positive shift is also seen in the area of part-time employment. In 2009, the share of part-time employment in total employment in EU-27 amounted 14.5%, which is 1.9% above the average in 2000. As it can be seen from Table 1, the share of part-time employment is higher in EU-15, which again confirms the existence of greater labor market flexibility in the “old” Member States (the differences between EU-15 and NMS are statistically significant at 99% confidence level in all age groups). Part-time employment in EU-15 namely presents a common way to enter and exit the labor market (Kajzer, 2005). Again, the most exposed to part-time employment relations are young people, especially young women (30.5%).

Table 1: Average temporary and part-time employment in EU-27, EU-15 and NMS-12 as percentage of total employment, by age groups, 2009, in %

Variable	EU-27	EU-15	NMS-12
Temporary employment as percentage of total employment			
15-64 years	10.8	13.0	8.0
15-24 years	32.2	39.9	21.6 ¹
55-64 years	6.8	6.0 ²	8.3 ³
Part-time employment as percentage of total employment			
15-64 years	14.5	20.4	7.1
15-24 years	23.4	31.3	13.5
55-64 years	17.9	23.4	11.1

Notes:
¹ The data are not available for Estonia.
² The data are not available for Luxemburg.
³ The data are not available for Estonia, Lithuania, Malta and Romania.

Sources: Eurostat, 2010; own calculations

There are also large variations in the extent of job mobility (i.e. share of employed persons who have experienced a job change within certain time frame) across the EU Member States. According to the data for 2005, 8.8% of employed people experienced a job change during past year at the EU level. The EU average was considerably exceeded by the United Kingdom (22.9%). The job mobility was also relatively high in Denmark, Hungary (11.5%) and Spain (10.6%), while it was the lowest in Cyprus (5.8%), Finland (5.7%) and Greece (5.6%). Even more, Andersen *et al.* (2008, p. 22) showed that countries with high levels of job mobility tend to be characterized by low average tenure (less than 8 years), while those with low levels of job mobility (such as Greece, Portugal and Slovenia) record high average job tenure (exceeding 12 years).

Employment mobility (i.e. the rate of transition from one employment status to another) is the highest in Denmark and United Kingdom, i.e. in countries with flexible labor markets, as almost 30% of the adult population had experienced one or another form of employment transition in the five years leading up to 2005. Moreover, Andersen *et al.* (2008, p. 41) pointed that EU countries with high levels of employment mobility generally have higher employment rates and lower long-term unemployment rates than countries with lower employment mobility.

4.1.2. Lifelong learning

As shown in Figure 3, the highest participation rate of adults who participate in lifelong learning (i.e. education and training programs, which are or are not in relation to the current or the future job of the participant) is recorded in the Scandinavian countries (Denmark, Sweden and Finland). In average, the participation rate in lifelong learning is higher in EU-15 (12.9%) – it exceeded the NMS-12 average by 7% in 2009 (the difference between groups of countries was statistically significant at 95% confidence level). The participation in lifelong learning programs is declining by age, being the highest in age group 25-34 (see also European Commission, 2008b).

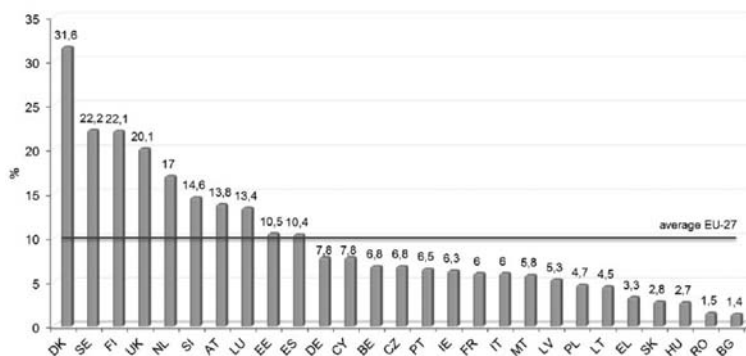


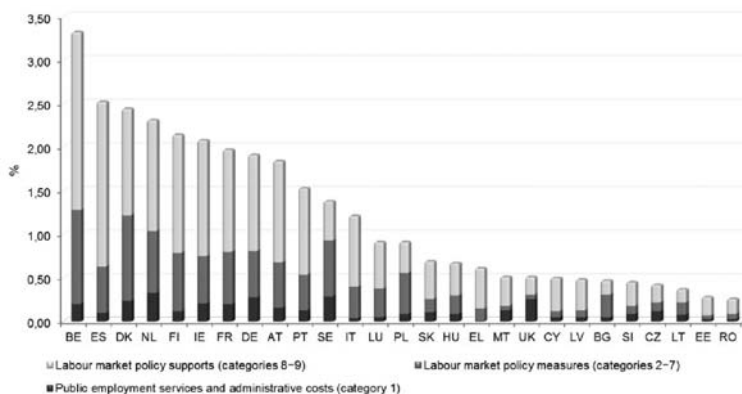
Figure 3: Participation rate of adults (25-64 years of age) in lifelong learning in 2009, in %

Sources: Eurostat, 2010; own calculation

One of the reasons for such large variations in participation rates in lifelong learning between countries is the level of their public expenditure for education. Namely, a simple analysis (performed on the data for 2007) showed that there is a positive correlation between participation rate in lifelong learning and public expenditures for education: Pearson correlation coefficient amounts 0.626 and is statistically significant at 99% confidence level.

4.1.3. Active employment policy

As shown in Figure 4, there are also large differences in the level of public expenditure for labor market policies across EU Member States. The public expenditures for employment policies were in 2008 especially high in Belgium (3.32% of GDP), Spain (2.52% of GDP), Denmark (2.44% of GDP) and Netherlands (2.31% of GDP). These countries, except Spain, also recorded the highest level of expenditure for active employment policies among EU Member States. The expenditures were the lowest in Romania (0.26% of GDP) and Estonia (0.28% of GDP). The average in the EU-27 amounted 1.21% of GDP, yet a major part was earmarked to passive employment policies (0.72% of GDP). Public expenditures on employment policies were statistically significantly (at 99% confidence level) higher in EU-15 (1.78% of GDP) compared to NMS-12 (0.5% of GDP).



Notes:

Active labor market policy measures (categories 2-7) include training, job rotation and job sharing, employment incentives, supported employment and rehabilitation, direct job creation and start-up incentives.

Labor market policy supports (categories 8-9) include out-of-work income maintenance and support and early retirement.

Figure 4: Public expenditures on employment policies as % of GDP and their structure, 2008

Sources: Eurostat, 2010; own calculations

Among active employment policy measures (i.e. measures under category 1 and categories 2-7), the EU Member States, in average, assigned in 2008 the largest share

to public employment services and administration costs (27%), training (24%), employment incentives (20%) and direct job creation measures (12%).

4.1.4. Modern system of social security

The average expenditures for social protection in EU-27 in 2007 amounted 21.7% of GDP. The EU average was considerably exceeded by France (30.5%), Sweden (29.7%), Belgium and Denmark (29.5%), and Netherlands (28.4%). The lowest expenditures were recorded in Latvia (11%), Bulgaria (15.1%) and Slovakia (16%). The expenditures were statistically significant (at 99% confidence level) higher in EU-15 (25.9% of GDP) compared to NMS-12 (16.6% of GDP).

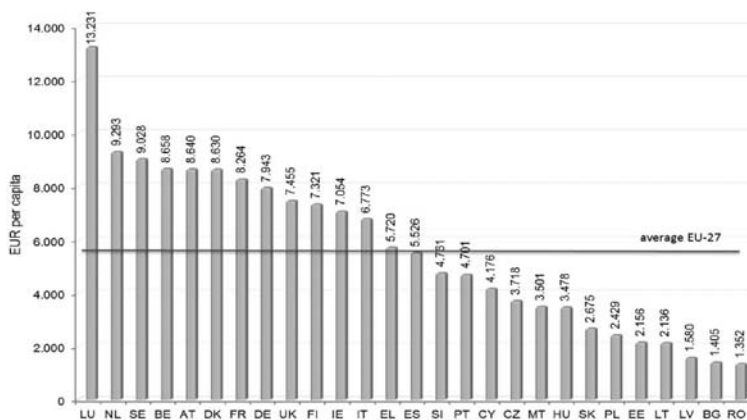


Figure 5: Public expenditures for social protection per capita, in EUR at PPP, 2007
Sources: Eurostat, 2010; own calculation

Net replacement rate for unemployment³ measures the effect of the move from employment to unemployment on household incomes. On average and irrespectively the family type, net replacement rate (in first year of unemployment) is smaller for those with higher pre-unemployment wage, meaning that when moved to unemployment those with lowest pre-unemployment wage lose least (financially). On average, at the EU level, those with pre-unemployment wage at the level of 67% lost 30% of previous income in 2008; whereas those with pre-unemployment wage at the level of 150% lost almost 40% or 50% of previous income. The data show that after five years of unemployment net replacement ratio declines, although in some countries still achieves high levels. Among countries that achieve the highest net replacement

3 Net replacement rate (NRR) is defined as ratio of net income while out of work (y_{netA}) and net income while in work (y_{netB}): $NRR = y_{netA}/y_{netB}$. If net replacement rate exceeds 100%, the unemployed person is not expected (at least not on short-term basis) to be encouraged to move from 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, p. 343).

rate for families with children classify Scandinavian and Benelux countries, Germany, Ireland and Slovenia (OECD.Stat, 2010).

On the other hand, the effect of the move from unemployment to employment is presented by the unemployment trap indicator⁴. The average tax burden for a single person without children in the EU in 2008 was 75% of additional earnings at employment. This means that at moving from unemployment to employment single person (who earned 67% of average worker’s gross earnings) received net income of EUR 0.25 for every EUR of gross earnings. The remaining EUR 0.75 went for taxes, social contributions and reduced social transfers on account of receiving gross earnings compared to incomes during unemployment. As shown in Table 2, the unemployment trap presents a problem in majority of the EU Member States, especially in those with well-developed out-of work support systems.

Table 2 also shows estimates of the low wage trap indicator⁵ (measured by marginal effective tax rate at moving from 33% to 67% of average gross earnings). In 2008, the average tax burden for a single person without children was 42.8% of additional gross earnings at moving to a higher paid job. This means that a single person at moving to a higher paid job increased net income with EUR 0.43 for every additional EUR of gross earnings. The remaining EUR 0.57 went for higher taxes and social contributions and reduced social transfers. The tax burden was higher in EU-15 than in NMS, however the differences were not statistically significant at 95% confidence level.

Tax burden also limits incentives to work among the recipients of government social assistance. In most countries, jobless persons who are searching for a job but are not eligible to unemployment benefits or who have exhausted their period of unemployment benefits may receive means-tested social assistance benefits. This can be a typical situation for low-income family types where one or both spouses have never worked or are not entitled to unemployment insurance or their eligibility is expired, and thus they only qualify for social assistance (Carone *et al.*, 2009, pp. 17-19). Table 2 reports estimates of the inactivity trap indicator for a single person without children and with 67% of average earnings. The average value of inactivity trap in EU amounted 56% in 2007.

According to the latest available data in Carone *et al.* (2009, pp. 29-30), disincentives to work remain particularly relevant for one-earner couple with and without children with lowest level of income. In the case of one-earner couple with two children, even when taking up a job with a wage equivalent to 67% of average wage, net disposable income in and out of work would be roughly the same in seven EU Member States (Table 2). In these countries, there appears to be a higher risk that social assistance recipients remain trapped in long-term benefit dependence. In order to avoid this,

4
$$\text{Unemployment trap (\%)} = \left(1 - \frac{(\text{net income in work}) - (\text{net income out of work})}{\text{gross earnings}} \right) \times 100$$

5
$$\text{Low wage trap (\%)} = \left(1 - \frac{\text{change in net income (from 33\% to 67\%)}}{\text{change in gross earnings (from 33\% to 67\%)}} \right) \times 100$$

Table 2: Unemployment trap (2008), low wage trap (2008) and inactivity trap (2007) in EU Member States, in %

Country	Unemployment trap	Low wage trap	Inactivity trap	Country	Unemployment trap	Low wage trap	Inactivity trap
BE	85	59	66	HU	80	39	46
BG	80	22	:	MT	58	19	62
CZ	68	41	66	NL	82	84	84
DK	89	79	88	AT	68	41	64
DE	74	56	66	PL	75	62	56
EE	63	23	41	PT	82	23	37
IE	74	50	79	RO	:	:	:
EL	61	24	19	SI	83	53	63
ES	80	21	44	SK	44	25	28
FR	78	47	44	FI	74	56	73
IT	80	37	22	SE	79	45	73
CY	:	:	56	UK	65	52	68
LV	85	32	49	<i>EU-27</i>	<i>75.0</i>	<i>42.8</i>	<i>56.0</i>
LT	81	27	38	<i>EU-15</i>	<i>77.1</i>	<i>48.4</i>	<i>59.7</i>
LU	86	52	68	<i>NMS-12</i>	<i>71.7</i>	<i>34.3</i>	<i>50.5</i>

: no data available

Sources: Eurostat, 2010; Carone *et al.*, 2009; own calculation

several countries already adopted changes in social assistance schemes, followed by the introduction of in-work benefits and changes in housing benefits (Carone *et al.*, 2009).

4.2. Analysis of the flexicurity models in the European Union

4.2.1. Characteristics of the flexicurity models

In this part of the analysis we identified homogeneous groups of EU Member States with regard to the similarities in labor market flexibility and security by cluster analysis (the methodology used is described in Section 3). The EU Member States (EU-25) were classified into five groups, forming five different flexicurity models (Table 3). In this section we briefly present characteristics of each of the five groups.

The first cluster of countries, formed by Belgium, France, Germany and Austria (i.e. continental countries), is characterized by medium level of flexibility in employment relationships (all three indices of employment protection are above the median value of EU-25) and security in the labor market. The shares of temporary and part-time employed exceed the EU median values; however, in comparison to other groups of countries, they could be identified as middle values. On average, the continental countries recorded the second highest expenditure for active employment policies (0.8% of GDP) and the highest total expenditures for social protection (28.8% of GDP).

Table 3: Median values of indicators on labor market flexibility and security by groups of countries, 2007 and 2008¹

	1st group	2nd group	3rd group	4th group	5th group	
Indicator/countries in the group	BE, DE, FR, AT	DK, FI, NL, SE	IE, UK	BG, CZ, EE, LV, LT, HU, RO, SK	EL, ES, IT, LU, PL, PT, SI	EU-25
EPL index, total, 2008	2.6	2.2	1.3	2.5	3.0	2.5
Temporary employed (15-64 years of age) as % of total employed, 2008	11.6	15.4	6.9	3.9	17.3	8.4
Part-time employed (15-64 years of age) as % of total employed, 2008	22.5	24.8	21.2	4.9	8.6	11.8
Expenditures for active employment policies as % of GDP, 2008	0.8	1.0	0.5	0.2	0.4	0.4
Participation rate of adults (25-64 years of age) in lifelong learning, %, 2008	7.4	22.7	13.5	4.1	6.3	7.1
Total expenditures for social protection as % of GDP, 2007	28.8	28.7	22.1	14.7	21.4	22.3
Net replacement rate for unemployed for 60 months and more (single person with 67% of average earnings, without children, recipient of social benefits), 2008	51.5	60.5	55.0	27.0	42.0	44.0

Notes:

¹ Kruskal-Wallis test confirmed statistically significant differences (at 95% confidence level) in all studied variables between all five groups of countries.

Sources: Eurostat, 2010; OECD.Stat, 2010; own calculations

Scandinavian countries (Denmark, Sweden and Finland) together with Netherlands form the second group of countries. They have intermediate-to-high level of labor market flexibility (they record the second lowest value of the total EPL index, low rigidity in regulation of temporary contracts (the median value of index amounts 1.6) and the highest share of part-time employed) and high (the highest among all studied groups) level of security). The existence of high level of security in the labor market is confirmed also by net replacement rate, unemployment trap and the low-wage trap indicators: for all three the group attained the highest value.

The third group includes two Anglo-Saxon countries, Ireland and United Kingdom. They are characterized by the most flexible labor market arrangement (the values of total EPL index are the lowest, especially in the area of temporary contracts (0.5)), although the median share of temporary employment is very low (6.9%). As regards the level of security in the labor market, comparing to the Scandinavian and the continental EU countries, it is relatively lower.

The fourth group of countries includes Eastern European and the Baltic countries (i.e. NMS). The group is characterized by a medium rigid system of labor market flexibility (the median values of EPL indices are close to the average of the EU-25) with low share of temporary and part-time employment. Moreover, NMS face the problem

of low security in labor market. Namely, total expenditures for social protection amount only 14.7% of GDP, which is 7.6% below the EU median. The expenditures for active employment policies are also low.

The last group is composed of Mediterranean countries (Greece, Spain, Italy, Portugal and Slovenia), Luxemburg and Poland. The countries from this group are characterized by the most rigid system of flexibility in employment relations, as the median values of indices of employment protection are the highest among studied groups. Despite rigidity in regulation of temporary forms of employment, the share of temporary employment is the highest (17.3%) in this group. Expenditures for social protection and active employment policies are at the level of the EU, whereas the participation rate in lifelong learning is relatively low (6.3%), reflecting low individual responsibility for ensuring his/her own security in the labor market. This group of countries can therefore be identified as a group with low flexibility and intermediate-to-low security in the labor market.

4.2.2. Macroeconomic characteristics of the flexicurity models

On the basis of classification of the EU Member States according to similarities in the implementation of labor market flexibility and security, we examined whether groups of countries differ also in economic performance. The overview of macroeconomic variables by groups of countries is available in Table 4.

As it can be seen from Table 4, the highest median GDP per capita in 2008 was recorded in Scandinavian and Anglo-Saxon countries, i.e. in countries with the most flexible labor market regulations. However, these groups differ distinctively in the level of attained security in the labor market. GDP per capita was the lowest in NMS (group 4), countries that are characterized with intermediate-to-low flexibility and the lowest level of security in the labor market.

The groups of countries also differed significantly in the level of real labor productivity per hour worked. Countries with more flexible labor market regulation moved to higher level of labor productivity in 2008, and vice versa. Labor productivity was especially low in NMS, where labor market flexibility and security were also at the low level. Although there are a lot of factors that influence the level of labor productivity, we believe that flexibility and security in working arrangements could play an important role.

Groups of countries that we characterized as countries with higher level of flexibility in working arrangements also recorded higher employment rates. For example, median employment rate in Scandinavian group of countries amounted 75.8% in 2008, which is 12% above the median of the groups with rigid labor market regulations (group 4 and 5). Moreover, Scandinavian countries also exhibited statistically significant lower unemployment rates compared to the other groups of countries.

Table 4: Median values of macroeconomic indicators
by groups of countries, 2008¹

	1st group	2nd group	3rd group	4th group	5th group	
Indicator/countries in the group	BE, DE, FR, AT	DK, FI, NL, SE	IE, UK	BG, CZ, EE, LV, LT, HU, RO, SK	EL, ES, IT, LU, PL, PT, SI	EU-25
Employment rate, 15-64 years of age, %, 2008	67.8	75.8	69.6	64.2	63.4	66.6
Unemployment rate, 15-64 years of age, %, 2008	7.2	4.9	5.9	6.0	7.2	6.3
Long-term unemployment rate, %, 2008	3.1	0.9	1.6	2.3	2.4	2.0
GDP per capita, in EUR at PPP, 2008	28,950	30,400	31,500	15,800 ²	23,600	25,600 ²
Labor productivity, GDP on working hour, in EUR at PPP, EU-15=100	112.3	99.3	100.7	48.0	74.0	89.1
Real labor productivity, in EUR per hour worked, 2008	40.1	41.4	38.9	18.3	7.8	23.8
Tax wedge, single person with 67% of average earnings without children, %, 2008	46.4	40.3	22.9	40.0	37.6	39.9

Notes:

¹ Kruskal-Wallis test confirmed statistically significant differences (at 95% confidence level) in all studied variables (except in labor productivity in EUR at PPP, EU-15=100) between all the groups of countries.

² The data for Romania refer to the year 2007.

Sources: Eurostat, 2010; own calculations

4.2.3. Flexicurity and labor productivity

As it can be seen from a simple empirical analysis in previous section, countries that record high level of flexicurity, also attain the highest macroeconomic performance. A flexible labor market enables enterprises to be more flexible when responding to the changing market conditions. While simultaneously ensuring security (in terms of stability of employment relations with well-qualified workers) enterprises can improve their productivity and market position.

In this part of the analysis we aimed to demonstrate the impact of labor market flexibility and security on real labor productivity per hour worked, at given GDP per capita and employment rate, *ceteris paribus*. The analysis, as described in Section 3, was performed in three steps. By the PCA, we, firstly, formed two components (flexibility and security) that accounted for 69% of the overall variability in the data (the factor of security accounted for 43.5% of the overall variability, whereas the factor of flexibility accounted for 25.5% of the overall variability). Secondly, we performed the linear regression analysis, in order to examine the relationship between real labor productivity and factors of flexibility and security (obtained by the PCA). The estimates of the linear regression⁶ showed the existence of a statistically significant

6 The linear regression model was statistically significant (at 95% confidence level). R-square amounted 0.909.

(at 95% level of confidence) positive relationship between the factor of security and the labor productivity at given GDP per capita and employment rate. The relationship between flexibility factor and labor productivity was not statistically significant. On the basis of the regression coefficients and score coefficients, we estimated the effect of an increase in individual variable of security on labor productivity, at given GDP per capita and employment rate.

As Table 5 shows, if, for example, only expenditures for active employment policy increase with 1%, the labor productivity increases with 2.31% at given GDP per capita and employment rate, *ceteris paribus*. Similarly, if only total expenditures for social protection increase for 1%, at given GDP per capita and employment rate, the labor productivity increases with 2.20%, *ceteris paribus*.

We stress that this is a simplified analysis of the impact of variables of security in the labor market on labor productivity, the results of which can be used above all for understanding the direction of relationship between variables. Limitations of the analysis derive from small number of analyzed variables and complexity of both security and flexibility in the labor market as also of the concept of productivity.

Table 5: The effect of an increase of an individual variable of labor market security for 1 percentage point on labor productivity (in percentage points), at given GDP per capita and employment rate

Variables (increase with 1%)	Effect on labor productivity (in %)
Expenditures for active employment policies as % of GDP, 2008	2.31
Net replacement rate for unemployed for 60 months and more (single person with 67% of average earnings, without children, recipient of social benefits), 2008	2.17
Total expenditures for social protection as % of GDP, 2007	2.20
Participation rate of adults (25-64 years of age) in lifelong learning, %, 2008	1.70
Part-time employed (15-64 years of age) as % of total employed, 2008	2.01
<i>Notes:</i> The calculation of the effect of variables of labor market security on labor productivity is based on the regression coefficient of factor 1 (it amounted 9.555 at $p=0.000$) and individual component score coefficient of variable within factor security.	

Sources: own calculation.

5. Conclusion

The empirical analysis has confirmed the existence of large differences in the level of implementation of policy components of flexicurity across EU Member States, also due to differences in their economic performance and labor market developments and undertaken reforms. The least successful in implementing flexicurity policies are NMS, as they have very rigid labor market at very low security of employees. Labor market is even more rigid in Mediterranean countries; however they perform better in the area of security. The flexicurity policies are most balanced in Scandinavian

countries, which, together with United Kingdom and Ireland, classify among the most successful EU Member States with the highest employment rate and the lowest unemployment rates. The importance of flexicurity for macroeconomic performance of the EU Member States was confirmed also by linear regression estimates. The latter pointed on the existence of positive relationship between indicators of security in the labor market and labor productivity.

On the basis of our findings, we can confirm that balanced flexicurity policies are of a special importance for further development of the European labor markets and economies. Moreover, as stated in the Council Conclusion's (2009), they are needed in order to manage the impact of global crisis, which has put the EU Member States under a lot of economic and political pressure. Consequently, according to Bruegel report (2009), it could happen that the EU Member States would not give the sufficient support for further development of the flexicurity policies due to increasing unemployment and different speeds and views on post-crisis recovery. This puts the European Commission before the most important strategic decision: "whether actively to promote an ambitious flexicurity agenda against the odds [...] or whether to shift emphasis and attempt to develop a less controversial agenda based on longer-term challenges such as aging and migration" (Bruegel, 2009, p. 74). We believe that flexicurity should remain an important EU employment policy priority.

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