Flexicurity in Europe

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Final Report

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Executive Summary

The notion of Flexicurity has been widely used in the last decade to reconcile the needs of a flexible labour market with those of a robust social security. Emerging in the Netherlands in the mid 1990s, this concept presupposes a "double bind": high levels of flexibility are required to compete successfully in a globalized market and thus to afford high levels of employment security.

The European Commission promoted flexicurity to a flagship policy in the mid 2000s. Included in the Lisbon Agenda (re-confirmed in its follow-up, the EU2020 strategy), flexicurity is advocated by guideline 21 of the European Employment Strategy 2007 as able "*to promote flexibility combined with employment security*". Member States are then called upon to implement employment policies aimed at achieving full employment, improving quality and productivity at work, and strengthening social and territorial cohesion.

After a decade of bonanza the economic crisis brought rising unemployment levels, decreased and in some cases even negative real GDP growth and scaled-back income-security policies, reducing the attraction of flexicurity. Most European Countries are facing increased inequality and social tensions, tighter budget balance constraints together with growing government expenditures to finance the considerable growth in unemployment rates, effectively reducing the scope for activation and other support measures. The 'double bind' of flexicurity seems therefore jeopardised.

Can Flexicurity survive the crisis?

This is the question we address in this report. By using the set of indicators proposed by the European Commission to monitor flexicurity we analyse the latest trends in four dimensions: flexible and reliable contractual agreements, lifelong learning, active labour market policies and social security systems. Our findings are summarised below.

Flexibility seems to have increased in many countries. Labour turnover has increased in most of the Eastern and Baltic countries (up to 8 percentage points in Latvia). Hiring rates have dropped sharply and dismissal rates boosted dramatically during the economic crisis. The proportion of individuals with at least the same employment security as in the previous year fell almost everywhere in Europe, and up to 15 percentage points in Latvia and 9 in Estonia (but also more than 6 percentage points in Spain and Portugal) while the fraction of workforce with involuntary temporary or part-time contracts increased even in not very traditionally flexible countries (like the Mediterranean ones). Higher flexibility, however, was not reached as the result of a well-defined policy strategy, but rather as the consequence of shrinking economic activity.

Young generations paid the highest price. The presence of a dual labour market in many Southern and Eastern countries has worsened the position of young generations since it induced large-scale dismissals of young workers with temporary contracts. During the period 2008-2012, the youth unemployment rate rose to more than twice the corresponding figure for the adult workforce, with peaks in the Eastern and Southern countries (5 times the adult level in Italy, Czech Republic and Romania). Temporary contracts, a typical measure of flexibility of labour market, have increased more for young cohorts during the crisis period: while in Poland 14 out of 100 young employees had

a temporary contract in 2000, by 2011 this figure had risen to 65 (but also 56 in Germany and 42 in EU27).

Temporary work does not seem a choice of the workers, but rather a constraint of the labour market, worsened by the crisis. In 2011 the percentage of workers aged 15-64 in EU27who could not find a permanent job and accepted to work on a temporary basis was about 60%, but this spans from less than 25% in DE and AT to above 90% in ES and CY.

We find evidence of the “skill biased technical change” whereby the low educated paid the highest price in the current crisis: in 2007 up to 66% of the young unemployed in Slovakia and up to 76% of the inactive workers in Germany and Denmark were low educated (ISCED level 0-2) with a European average of 20.1% and 59% respectively. The situation in 2011 has not changed: up to 63.7% young unemployed in Slovakia and up to 75% of inactive workers in Denmark have at most a lower secondary education degree (with a European average of 28.2% and 52.3% respectively). The condition is particularly serious as a poor start for young generations (with temporary contracts) tends to imply lower lifetime wages, more frequent career breaks, lower employment opportunities, lower firms’ incentives to invest in human capital formation and problems with future pension entitlements (as temporary workers are generally not paying the same amount of pension insurance as workers with an open-ended contract). This is the so-called "scarring" effect.

The Flexicurity thesis postulates that “a market with high employability levels also shows high levels of labour market turnover and employment security”. The current crisis is likely to boost the need for measures of income support in order to counteract the increased unemployment rate. Income support for out-of-work maintenance already increased at the pace of 9% every year on average in the EU during the period 2008-2010. This increase was more pronounced in IE and ES where this form of support represents 2.9% and 3.1% of 2010 GDP respectively.

High (or growing) levels of social security collided with the constraints of a tight budget balance and a decreasing real GDP therefore limiting the (already scarce) room for manoeuvring of some Member States (especially the Southern countries). In the period 2008-2010 a drop of expenditures in active labour market policies has been observed in many EU countries with traditionally low activation measures: in Anglo-Saxon Countries with -19% in UK and -33% in IE, in Mediterranean countries where reductions (-31% in ES, -14% in IT, -5% in EL) coexist with a slight increase (8% in PT), but also it has been observed in countries with generous activation policies like in NL (-20%) and DK (-10%).

Investment of enterprises in training workers (direct and labour costs) has decreased slightly in many EU countries (notable exceptions are PT, BE and CY where participation to CVT increased substantially – by 12% points for the first two countries and 7% for CY), probably in response to the changed economic conditions and the raised financial pressure on firms.

From the data we analysed, the additional flexibility obtained during the crisis does not seem to be compensated by increased security. Rather the contrary. Undoubtedly, in countries where flexicurity policies were/are in place (Nordic and Continental) the effects of the crisis (in terms of unemployment and GDP growth) have been less severe than in other countries characterised by high labour market rigidities. This implied more room for manoeuvring for the former when deciding activation and support policies. However many historical and institutional factors, besides the

degree of flexicurity, played a role in the economic fate of the European countries. It is still unclear whether the increased flexibility will produce the economic advantages to reach enhanced security levels in the long run or if rising social inequality, worsened by flexibility, will rather damage the social fabric and will ultimately be detrimental to the entire economy.

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Indicator list		**source**	**direction**	**last available year (complete series)**	**type of indicator**	**relevant brekdowns available**
Overall	**Transitions by contract**	**EU SILC**	**+**	**2010**	**Output**	**wstatus, sex,**
Sub-ind	EPL for regular workers	OECD	-	2008	**Input**	
	Employees with overtime work	LFS	+	2004	**Process**	
	Job tenure in years	LFS	-	2011	**Output**	
	Share of employees on involuntary part-time	LFS	+	2011	**Process**	age, sex
	Share of employees on involuntary temporary work	LFS	+	2011	**Process**	age, sex, reason
	Labour turnover (hires and separations)	LFS	+	10(no DE, UK,	**Output**	
	Transitions from temporary to permanent employment	EU SILC	+	2010	**Output**	sex, wstatus, trans1y
	Overtime hours	LFS	+	2010	**Output**	compendium
Context	Access to flexitime	LFS Ad-Hoc module	+	2004	**Input**	

Component 2: Comprehensive lifelong learning strategies						
Indicator list		**source**	**direction**	**last available year (complete series)**	**type of indicator**	**relevant brekdowns available**
Overall	**Lifelong learning (age 25-64)**	**LFS**	**+**	**2011**	**Process**	**age, sex**
Sub-ind	Public spending on human resources:	Eurostat, UOE	+	2009	**Input**	
	Participation in CVT	CVTS	+	2010	**Process**	sex, sizeclass
	Transition in labour status and pay level (transition to higher qualifications)	EU-SILC	+	2010	**Output**	sex, wstatus
	Transition in labour status and pay level (transition to lower qualifications)	EU-SILC	-	2010	**Output**	sex, wstatus
	Educational attainment	Eurostat	+	2011	**Output**	age, sex
	E-skills (no, low, medium&high)	Eurostat	-/+	2011	**Output**	age, education, type of knowledge
	Investment in training adults	CVTS	+	2010	**Input**	sizeclass
Not available	Gap in CVT participation between temporary and permanent workers	LFS	+	2011	**Process**	

Component 3: Effective active labour market policies (ALMP)						
Indicator list		**source**	**direction**	**last available year (complete series)**	**type of indicator**	**relevant brekdowns available**
Overall	**Long term unemployment rate**	**LFS**	**-**	**2011**	**Output**	**sex**
Sub-ind	Expenditure on ALMP per person in labour reserv	Eurostat, LMP	+	2010	**Input**	LMP_type
	Expenditure on ALMP as % of GDP	Eurostat, LMP	+	2010	**Input**	LMP_type
	Activation	Eurostat, LMP	+	2010	**process**	LMP_type, sex

Component 4: Modern social security systems						
Indicator list		**source**	**direction**	**last available year (complete series)**	**type of indicator**	**relevant brekdowns available**
sub-dimension social security systems						
Overall	**At-risk of poverty of unemployed**	**EU SILC**	**-**	**2011**	**Output**	**age, sex, wstatus, indic_il**
Sub-ind	PLMP expenditure on supports per person in labour reserve	Eurostat,LMP	+	2010	**Input**	LMP_type
	Expenditure on PLMP as % of GDP	Eurostat,LMP	+	2010	**Input**	LMP_type
	Unemployment trap	Eurostat	-	2010	**Input**	
	Low wage trap	Eurostat	-	2010	**Input**	ecase
	Net replacement rate after 6 months	OECD/EC	+	2010	**Input**	
	Net replacement rate after 5 years	OECD/EC	-	2010	**Input**	
	Support	LFS	+	2010	**Process**	LMP_type, sex

Component 4: Modern social security systems						
Indicator list		**source**	**direction**	**last available year (complete series)**	**type of indicator**	**relevant brekdowns available**
sub-dimension reconciliation of work and private life						
Overall	**Inactivity or part-time work due to personal and family resp.**	**LFS**	**+**	**2010**	**Process**	
Sub-ind	Child care	EU SILC	+	2010	**Input**	age_c, duration
	Employment Impact of parenthood	LFS	-	2011	**process**	
	Lack of care for children and other dependents	LFS	-	2010	**Output**	
need further investigation	Inactivity trap (1 earner 2 children)	OECD	-	2008	**Input**	
	Inactivity trap (2 earners 2 children)	OECD	-	2008	**Input**	
Not available	Transition by work life balance combinations	EU-SILC	+		**Output**	
	Participation rate break		+		**process**	

Breakdowns of indicators

Wstatus:	Sex	Reason	Trans1y
Population	total	Could not find permanent job	Transition to employed person except employee
Employees with a permanent job	males	Did not want a permanent job	Transition to unemployment
Employees with a temporary job	females	In education or training	Transition to inactivity
Employed persons except employees		Probationary period	Transition to employee with a permanent job
Unemployed persons			Transition to employee with a temporary job
Students			
Retired persons			
Other inactive persons			

Sizeclass	Age	LMP-type
total	From 15 to 64 years	Labour market services
From 10 to 19 employees	From 20 to 24 years	Training
From 10 to 49 employees	From 25 to 34 years	Job rotation and job sharing
From 20 to 49 employees	From 25 to 64 years	Employment incentives
From 50 to 249 employees	25 years or over	Supported employment and rehabilitation
From 250 to 499 employees	From 30 to 34 years	Direct job creation
250 employees or more	From 35 to 44 years	Start-up incentives
From 500 to 999 employees	From 45 to 54 years	Out-of-work income maintenance and support
1 000 employees or more	From 45 to 64 years	Early retirement
	From 55 to 64 years	Total LMP (categories 1-9)
		Total LMP measures (categories 2-7)
		Total LMP supports (categories 8-9)

Indic_il
At risk of poverty rate (cut-off point: 40% of median equivalised income)
At risk of poverty rate (cut-off point: 50% of median equivalised income)
At risk of poverty rate (cut-off point: 60% of median equivalised income after social transfers)
At risk of poverty rate (cut-off point: 70% of median equivalised income)
At risk of poverty rate (cut-off point: 40% of mean equivalised income)
At risk of poverty rate (cut-off point: 50% of mean equivalised income)
At risk of poverty rate (cut-off point: 60% of mean equivalised income)

Age_c	Duration	Ecase
Less than 3 years	Zero hours	Single person without children, 33% of AW
From 3 years to minimum compulsory school age	From 1 to 29 hours	One-earner married couple, at 33% of AW, with two children
From minimum compulsory school age to 12 years	30 hours or over	

Flexicurity in Europe

1. Introduction

The notion of Flexicurity has been widely used in the last decade to reconcile the needs of a flexible labour market with those of a robust social security. Coined in the mid 1990s in the Netherlands by the Dutch sociologist H. Adriaansen, the word flexicurity was associated to the need of strengthening the position of temporary workers without compromising flexibility (Madsen 2006 and Van Oorschot, 2004).[1] This notion was widely used also in Denmark in the 1990s for a number of labour market reforms (Madsen 2002) and had an echo at the EU level in 1997 with the Commission's Green Paper *Partnership for a new Organization of Work* which states: "*the key issue for employees, management, the social partners and policy makers alike is to strike the right balance between flexibility and security*".

Only in the 2000s was the concept of flexicurity proposed in the European discourse as a guideline to modernising employment policies and welfare provisions. In response to the dominant deregulation of the 1980s,[2] the notion of flexicurity claims that investment in social policies is not a wasteful burden but instead constitutes an economic production factor (Wilthagen, 1998). The idea is that flexibility and security could be mutually supportive: only through higher security protecting the employment (and not the job), the challenges of a globalized economy could be effectively faced via additional flexibility (hence efficiency).

In 2007 the European Commission promoted this idea to a key policy concept. Flexicurity was incorporated into the European Employment Strategy 2007 (and in the Lisbon Agenda): guideline 21 calls for Member States "*to promote flexibility combined with employment security*" and to implement employment policies aimed at achieving full employment, improving quality and productivity at work, and strengthening social and territorial cohesion. This document proposes a set of policy components, reaffirmed later within the EU-2020 strategy. These are:

1. **Flexible and reliable contractual arrangements (FCA)**: The availability of contractual arrangements, providing adequate flexibility for both employer and employees in a balanced combination with security and activation offers[3] via modern labour laws, collective agreements and work organization[4]

2. **Comprehensive lifelong learning strategies (LLL)**: strategies to ensure the continual adaptability and employability of workers, particularly the most vulnerable.

[1] The idea to reconcile security with flexibility was present in the Rehn-Meidner Model in Sweeden after World War II and in the Sorge and Streeck's model of 1988 (see Keune and Jepsen, 2006).
[2] And riding the wave of a decade of good economic performance in the leader flexicurity countries (Denmark and Netherlands)
[3] Flexicurity, Joint Contribution of the Employment Committee and the Social Protection Committee, May 2006.
[4] EMCO report Monitoring and analysis of Flexicurity policies, Issue 2 July 2009.

3. **Effective labour market policies (ALMP)**: policies helping people to cope with rapid change, reduce unemployment spells, and ease the transition to new jobs.

4. **Modern social security systems (MSS)** further divided in: 4.a. Social security systems and 4.b. Reconciliation of work and private life: systems that provide adequate income support, encourage employment and facilitate labour mobility. It includes a broad coverage of social protection provisions helping people to combine work with private life and family responsibilities.

The monitoring of flexicurity achievements has been taken forward following the endorsement by member States of a list of indicators (EMCO-list[5]). A revised and enriched list of indicators (EMCO-modified list[6]) has been proposed in 2010. Both lists classify indicators of flexibility and security in input-process-output. [7]

The difficulty for establishing a clear categorization of flexicurity dimensions both at the EU level and among experts (see for example Viebrock and Clasen, 2009) stems from the multidimensional nature of the concept, its strong path (country) dependence, and the interlink between all dimensions and the need to take time (hence possible loops and intertemporal links) into account. A brief review of the different concepts and problems is given in the Section 2.

The recent trend in assessing flexicurity at the European level is linked to the monitoring of employment policies using the Joint Assessment Framework (JAF).[8] Setting aside the taxonomy input-process-output, the Commission proposes an analytical tool, the JAF, to underpin evidence-based policy making based on a three-step approach:

1. quantitative assessment based on indicators: identification of a key overall indicator per policy (sub-)area and a limited number of corresponding sub-indicators and contextual indicators;
2. qualitative assessment that qualifies and complements the findings from step 1;
3. prioritising challenges and identifying key challenges.

This new assessment framework favoured an overall revision of flexicurity indicators, reported in Section 4, eventually leading to a new list of overall indicators and sub-indicators (and in some cases contextual indicators) for each of the four dimensions of flexicurity. This list (and its regrouping according to the JAF style) only partially overlaps with the policy areas proposed by JAF (which represent the yardstick of Commission priorities for its residual mandate).[9] The dimensions FCA and LLL are partially contained in policy area *2.a Combating segmentation* and *8.2 Lifelong learning* respectively. The dimension ALMP coincides with the policy area *3. Active Labour Market Policies* and the dimension MSS is contained in two policy areas: *4.1 Adequate social security* and *5. Work-life balance*. Nonetheless, integrated flexicurity policies remain a key word in the Commission discourse related to modernising labour markets and achieving the objectives of Europe 2020

[5] EMCO/25/240609/EN
[6] EMCO/41/300610/EN
[7] EMCO (Employment Committee) report Monitoring and analysis of Flexicurity policies, Issue 2 July 2009.
[8] See the joint Commission, EMCO, Social Protection Committee report to the Council (Nov. 2010): Foundations and structures for a Joint Assessment Framework (JAF), including an Employment Performance Monitor (EPM) to monitor the Employment Guidelines under Europe 2020. Council Doc 16984/10.
[9] Flexicurity has never been a policy area in its own. JAF has been recently updated and will be published in 2013.

Strategy. Both Commission initiatives: an *agenda for new skills and jobs* and *youth on the move* contain suggestions for strengthening flexicurity by reducing labour market segmentation and supporting labour transitions (by equipping people with the right skills for employment); improving job quality and working conditions; supporting job creation; facilitating the acquisition of skills, qualifications and experience; strengthening public employment services such as job search support, career analyses, validation of experience, etc.

The difference in socio-economic, institutional and historical backgrounds among European countries pushed the Commission to propose country specific pathways to meet the challenge of flexicurity: (i) tackling contractual segmentation, (ii) developing flexicurity within enterprises and offering transition security, (iii) tackling skills and opportunity gaps among the workforce, (iv) improving opportunities for benefit recipients and informally employed workers (European Commission 2007a and European expert group on flexicurity, 2007).

It is still not clear to what extent these goals will be translated into effective practices and, ultimately, results. Since 2008 the concept of flexicurity has been challenged by two forces. On the one hand, the economic crisis diminished both the public provisions for labour active policies, education and social security and the private incentive to invest in human resources in such a way that the first victims of the crisis have been precisely those workers with flexible contractual arrangements (Tros, 2012). The persistent unemployment (especially of young cohorts) and the difficulty in early career development, as well as the cut in welfare expenditure in many member states, are all factors which do not contribute to an effective flexicurity policy.[10] On the other hand, the concept of flexicurity itself suffered from a lack of consensus driven by the weakness of its underlying theory and the imprecise nature of the concept (Viebrock and Clasen, 2009).

The economic crisis also had an impact on how the European Commission envisaged flexicurity. When first mentioned by Commissioner Špidla in 2005, the idea of flexicurity was more related to the neo-liberal push towards deregulation of labour markets (Vesan, 2011). By contrast, the current approach of the Commission is to devote more attention to employment security, as stated by Commissioner Andor (2011) *"even before the crisis, the number of temporary contracts and jobs arranged through private work agencies rose steeply, even in countries where employment protection has been reformed. The labour markets did not really benefit from this, despite the short honeymoon when employment increased before falling sharply during the crisis. And job insecurity has increased"*.

This report presents a brief overview of the concept of flexicurity and its latest developments (Section 2 and 3). The preparatory work for constructing the list of flexicurity indicators endorsed by EMCO in November 2012 is presented in Section 4. Section 5 contains the evaluation of an alternative list of indicators jointly developed by EMPL and JRC and used to construct a set of composite indicators of flexicurity (AA N° 30566-2007-03 A1CO ISP BE - Flexicuirty1). Five Annexes containing the JAF graphs, a technical document about data and related issues accompanying the Excel files with bar and radar charts and an Excel file with the updated data of the project Flexicurity 1 complete the package.

[10] Given the rigidities of the labour markets in Europe the flexibility part has be interpreted as working hours flexibility more than anything else (Meardi, 2012)

2. The concept of Flexicurity: a brief overview

The literature on flexicurity is very recent and goes back to the 1990s and early 2000s when flexicurity is at times a strategy, a state of affairs and sometimes an analytical tool. Wilthagen (1998) defines it as a coordinated policy strategy; Wilthagen and Rogowski 2002 refer to a synchronized strategy directed towards weaker labour groups, while Ferrera et al., 2001 associate flexicurity with the fight against social exclusion. A totally different position is expressed by Tangian 2004 who sees flexicurity as a response to the economic need to increase the competitiveness of the European economies, thus promoting liberalization regardless of security concerns (which are only used as a way to reach a compromise between employers and employees). Madsen, 2004 paves the way towards a more pragmatic vision of flexicurity by proposing the idea of the "golden Triangle" based on flexible labour markets, generous unemployment support and strong emphasis on activation measures (like skill upgrading and requalification of unemployed workers). The European Commission (2006, 2007a) follows this direction but adopts a more institutional definition based on four pillars (with more emphasis on lifelong learning and on reconciliation family-work with respect to Madsen 2004), while Wilthagen and Tros 2003, 2004 offer a set of flexicurity profiles in order to allow a full monitoring of policies in European Countries. They identify various types of flexibility and security, pointing out the historical path dependency of the concept (and opening to the construction of dynamic indicators). The combination of these different forms of flexibility and security produce a matrix helpful to analyse the different national or sectorial flexicurity profiles.

Each of these approaches is not neutral as it implies a different emphasis on the various flexicurity components and a defined path towards the reconciliation of security and flexibility. As stated by Chung (2012, p. 154) *"By taking up a certain definition and framework, a researcher is consciously taking a decision to put emphasis on a certain aspect of flexicurity"*.

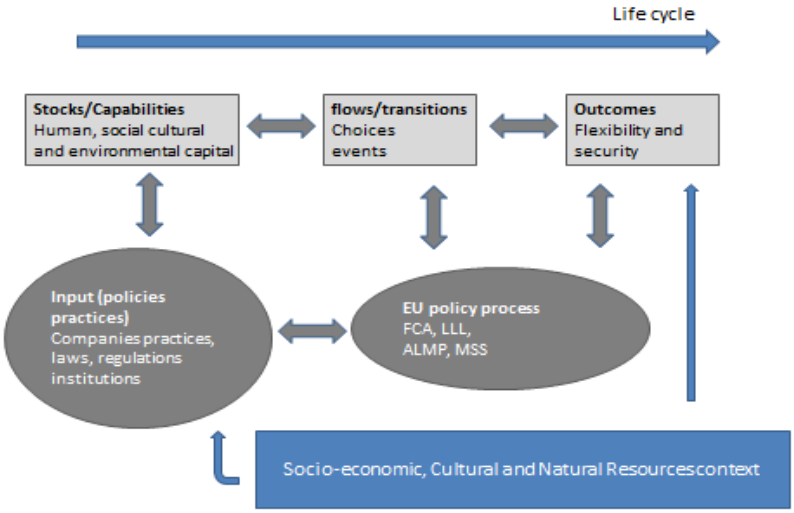
Even if there is no universally agreed-upon definition of flexicurity, this concept is presented in the literature mainly in two ways: as a **policy strategy** (i.e. the efforts to reach flexibility and security) or as a **state of affairs** (i.e. the outcome of flexicurity policies).

Flexicurity as state of affairs is essentially implemented in the **Stock-Flow-Outcomes** model (see Figure 1), and Muffels et al, 2010, where the stock is the set of human and social capital[11] built up though education, skill formation, work experience, and social networking. The transition and the duration of states constitute the flow and the outcomes are the attainments of different types of flexibilities/securities. The approach has been operationalized as a monitoring tool by constructing an extended Flexicurity Matrix (Wilthagen 1998) with 5 forms of flexibility (numerical internal, numerical external, functional internal, functional external, wage flexibility) and 7 different forms of security (job security, work security, employment security, wage/income security - after transfer income-, employability security, representation security, work-life balance security) and by adding the concept of dynamic indicators to monitor the transition between outcomes and new actions.[12]

[11] Inspired to Sen's capability approach of 1993 and to the Stiglitz, Sen, Fitoussy report of 2009

[12] **Flexibility**. External numerical flexibility: ease of hiring and firing workers and the use of flexible forms of labour contracts; *Internal numerical flexibility*: the ability of firms to adapt to economic fluctuations via e.g. work-time adjustments, sub-contracting, temporary work, etc.; Functional internal flexibility: ability of firms to

Figure 1. Flexicurity as state of affairs: the Stock-Flow-Outcome model



(Source: rearranged from Muffels at al. 2010, FCA=flexible and reliable contractual agreements; LLL= lifelong learning; ALMP=active labour market policies; MSS=modern social security systems).

Flexicurity as a policy strategy is operationalized in the **Effort-States-Challenges** (ESC) model (Figure 2, Bekker and Chung 2009). Efforts aim at describing the different actions made to enhance flexicurity by institutions (e.g. via employment protection, regulation on wages or work-time), companies (e.g. via working time arrangements) and individuals (e.g. via savings or overtime working hours). States refer to the outcome of flexicurity policies, basically income security and higher employment rate (higher productivity). Challenges can be understood as the gap between the policy goals set when Efforts were designed and what has been actually achieved. This gap establishes the link between the states, the current policy agenda, and the design of future Efforts and constitutes the necessary dynamic element to make flexicurity an evolving concept. Notice that the same level of Efforts does not necessarily bring the same effects or produce the same challenges. A series of indirect effects (e.g. on fertility rate) or external factors influencing the context determine the results and the extent of the interaction between the elements of the ESC model and should be taken into account.

A reduced version of the ESC model has been used for policy evaluation (Castonguay, 2009) under the name of Input-Process-Output where Efforts translate into Input and Process and States correspond to Outputs. Challenges parallels to Impacts are usually neglected in the static version of policy cycle formulation.

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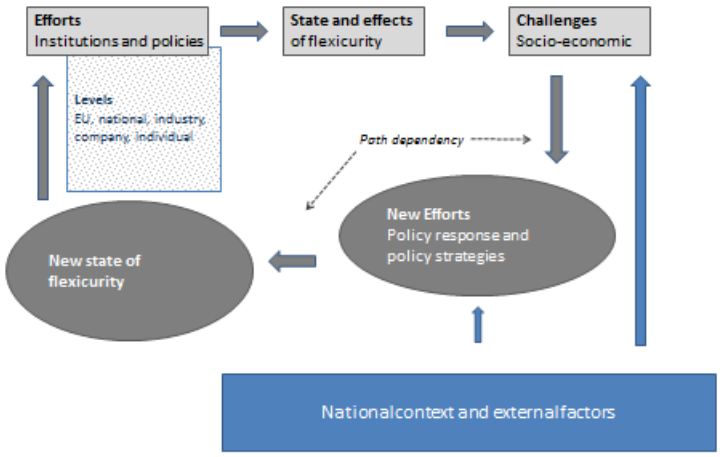
deploy the skills of the workforce and internal job-mobility; Functional external flexibility: mobility of workers across jobs and functions; Wage flexibility: ability to introduce pay based on performance/results. **Security**. Job security: the certainty of retaining a specific job with the same employer; Work security: safe and healthy workspace; Employment security: certainty of remaining in paid work (not necessarily with the same job or employer); Wage/income security: certainty of receiving adequate and stable level of income; Employability security: opportunity to acquire and maintain skills; Representation security: protection of collective voice through workers' representation and trade unions organizations; Work-life balance: options to combine work with family responsibilities. Definitions rearranged from Viebrock and Clasen 2009 and Muffels et al., 2010

Input indicators are quantitative assessments of rules and regulations related to "rights" or obligations" (e.g. benefit coverage, provision of services and financial resources, etc.); Process Indicators aim at measuring the extent to which policy measures are being implemented. Output indicators ideally measure the result of policy measures (e.g. unemployment dynamics, actual income security, or lifelong learning participation). The goal of this classification is not to establish a causal link between input-process-output (deemed too complex for a linear and mechanistic representation of the interaction between different variables) but rather to link the monitoring of flexicurity to the policy cycle and use the list of indicators for policy evaluation.

Criticisms to this model have been proposed by Muffels et al, 2010 and Chung 2012: if flexicurity has to be intended both as a policy strategy and a state of affairs, one should measure the efforts made by institutions, companies and individuals to enhance flexibility and security, and states intended as the outcome of flexicurity policies (in terms of income security and higher employment and/or productivity). While input and process indicators seem to describe efforts, output indicators mix states and efforts, thus making a clear evaluation of flexicurity difficult.

Figure 2. Flexicurity as policy strategy: the Efforts-States-Challenges model



(Source: rearranged from Muffels at al. 2010)

The dynamic approach implicit in the ESC model creates room for an analysis of the interplay between levels of regulation necessary to understand success/failures and bottlenecks of flexicurity enhancing policies. It is possible to distinguish (i) the supranational level with EU directives and regulations (e.g. the Working time directive) or with the open method of coordination (e.g. the European Employment Strategy); (ii) the national level with national legislation and policy, (iii) the sector/branch/industry level with sectorial agreements implemented through collective bargaining; (iv) the company level with corporate policies and formal or informal bargaining; (v) the individual level with particular work/time arrangements.

Another advantage is that, being centred on the policy process, the ESC model offers the possibility of embedding different pathways to flexicurity to adjust for the different realities in European

Countries. The SFO model, being based upon a predefined taxonomy of security and flexibility forms instead offers the possibility of identifying predefined combinations of flexibility and security which do not always match national specificities (European expert group on flexicurity, 2007). Moreover, having 35 different combinations of flexibility and security forms (coming from a matrix with 7 rows and 5 columns) may contribute to the vagueness and the ambiguity of the concept of flexicurity (Keune and Jepsen, 2006).

The studies focusing on the multidimensional nature of flexicurity and following either the ESC or the SFO approach started in the early 2000s (see Viebrock and Clasen, 2009). These studies, briefly reported in Section 2.1, consist mainly of two types:

1. Studies aimed at analysing **trends** and flexicurity pathways using national data, and clustering groups of countries according to the level of flexibility and security displayed (Boeri 2011, Bekker and Chung 2009, Chung 2012, European Commission 2006, 2007b, Eurofund 2010a,b, Laporšek and Dolenc 2011, Muffels and Luijkx 2005, 2008). Trends and clusters are also linked to the **dynamic** perspective of flexicurity using micro-level panel data coming from large surveys[13] analysed among others by Muffels, Wilthagen Chung and Dekker (2010).
2. Studies aiming at constructing **composite indicators** to measure the extent of flexibility and security in EU Member States (among others Manca, Governatori, Mascherini 2010, Maselli 2010, Tangian 2010, Bachmann, Bechara, Schaffner, 2011).

Furthermore the literature reports **flexicurity practices** in EU Member States (in the 1990s and early 2000s mostly in Denmark and Netherlands, with the economic crisis in all EU countries) useful for identifying best practices in times of economic challenges (see Section 2.2).

2.1 Monitoring of flexicurity across EU by using the ESC or the SFO approach

In the specialized literature, flexicurity is mostly assumed to be "good" or welfare-enhancing by definition, without a (data driven) proof that it is actually so. The bulk of the (scarce) quantitative literature on flexicurity has been centred on the definition of the most suitable indicators to populate the four dimensions of flexicurity, and on the analysis of EU Member States' performances and trends. This has been the focus of the European Commission (European Commission 2006, 2007b) and of Muffels, Wilthagen, Chung (2010). All these studies define and analyse a set of flexicurity indicators, identify common patterns across countries, and cluster countries according to performance. An overall assessment of the actual welfare-enhancing effects of flexicurity is lacking in the literature and there is little empirical analysis of the trade-offs between flexibility and security as well of the relationship between output variables such as GDP per capita, productivity, disposable income, material deprivation or unemployment rate, and the indicators associated to flexibility and security.

[13] As for example the Labour Force Survey, the European Community Household Survey, or EU Social and Living Conditions survey.

Recently Laporšek and Dolenc (2011) replicate the analysis of the European Commission (2007b) by clustering 25 EU countries on a subset of indicators belonging to the four pillars of flexicurity (hierarchical clustering using the Ward method, data 2007-2008). They find five clusters describing different models of flexicurity in EU. A rigid labour market and a very low security of employees characterize the Eastern European and the Baltic countries and are associated with a low labour productivity and GDP per capita. Low flexibility and intermediate-to-low security is found in Mediterranean countries, Luxemburg and Poland together with a low labour productivity and a GDP per capita close to the EU average. The highest productivity, GDP per capita and the lowest unemployment is registered in Scandinavian and Anglo-Saxon countries where flexibility is high and security is intermediate (Scandinavian and NL) to high (UK and Ireland). Finally, continental countries (Germany, Austria, France and Belgium) display medium level of flexibility in employment relationships with a share of temporary and part-time contracts exceeding the EU average but with high expenditures in active employment policies and social protection. Interestingly each cluster is analysed in relation to some indicators of macroeconomic performance (like GDP per capita, unemployment rate, long-term unemployment and real labour productivity). The authors conclude that countries with greater flexibility and security attain higher levels of GDP per capita and productivity, and lower levels of unemployment. [14]

The need to develop dynamic indicators has been underlined by many authors (Muffels, Wilthagen, Chung and Dekker (2010), Muffels, R., Wilthagen, T., Chung, H., (2010) Muffels and Luijkx (2008) among others). Muffels, Wilthagen, Chung and Dekker (2010) for example monitor the progress of Member States' achievements on flexicurity by developing transition indicators for the four components of flexicurity using EU-SILC data (of particular interest is the indicator on *work-life balance transition security* discussed by the Employment Committee Indicator Group as a possible official indicator of the component on Modern Social Security Systems).

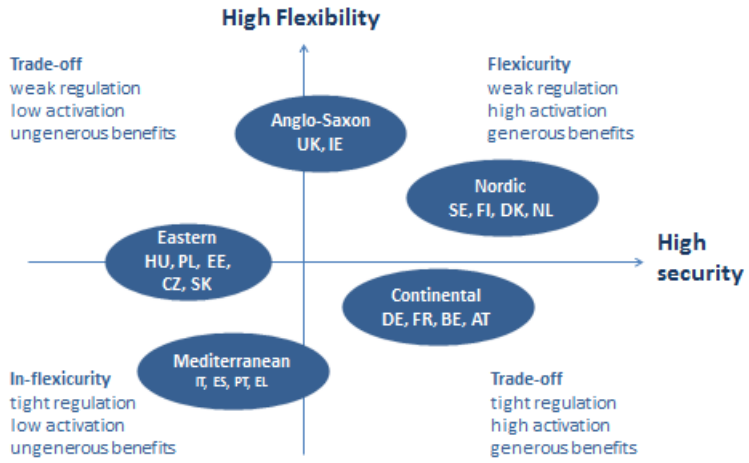
The flexibility notion presupposes a "double bind": high levels of flexibility are required to compete successfully in a globalized market and thus to afford high levels of employment security (see Muffels and Luijkx, 2005). However, the differences between Member States may suggest the presence of possible trade-offs between flexibility and security. An increase in flexibility (via increased market competition or skill-biased technical change) produces a decrease of security for employees, especially the low skilled ones (Muffels and Luijkx, 2005). Various strands of the economic theory offered explanations for the trade-off. The neoclassical theory points out that generous social protection (high security) and institutional constraints such as minimum wages, and collective wage bargaining could decrease the flexibility of the labour market slowing down the adjustment process of the labour force to the challenges of the globalization and economic downturns. Institutional economics suggests that tight dismissal protection and entry barriers based on skills could hamper efficiency, and thus flexibility, via additional transaction costs. Another explanation points to the rise in demand for high skilled workers induced by the "skill biased technical change" that reduces the demand for low skilled workers (Luddite explanation) who are thereby forced to accept lower wages and security. A similar justification is given by sociologists:

[14] The comparison between clusters is done using both descriptive statistics and an econometric modelling regressing productivity on two factors (representing flexibility and security) obtained using Principal Component Analysis. The model estimated is however not fully described in the paper (nor the results) so we report only the results of the descriptive statistics.

globalization and social stratification particularly affects low skilled workers, who as a group are increasingly exposed to rising employment instability and income insecurity (Muffels and Wilthagen 1013).

Using the European Community Household Panel, Muffels and Luijkx (2005) find evidence that, for the period 1993-1999 and for male workers, some countries – corporatist and Southern regimes - behave according to the trade-off theory (an increase in flexibility leads to decreased security), while others - the social-democrats regimes - behave according to the "double bind" model. Southern regimes exhibit segmented labour markets with low mobility rates and lag behind countries with liberal labour markets in terms of assuring work security (see Figure 3). A similar result is found with an updated set of data (ECHP 1994-2001 for 14 EU countries, male workers) by Muffels and Luijkx (2008): stable institutional differences across Member States and different mix of flexibility and security patterns preventing a clear endorsement of either the trade-off or the double bind approaches. They find support for the positive impact of the "knowledge based economy": human capital investment tends to promote upward mobility and low educated workers appear to be the ones who pay the price of the economic challenges.

Figure 3. Theoretical classification of countries and policy regimes in the flexicurity context



(Source: rearranged from Muffels and Luijkx 2008)

It would be interesting to replicate this analysis, differentiating between the pre and the post crisis (including female employment as well) in order to disentangle the ability of the different regimes to respond to the crisis.

This was, to some extent, the work done by Tangian (2010). He constructed 4 composite indicators measuring (i) flexibility (both institutional flexibility based on OECD-employment Protection Legislation indicators, and factual flexibility measured via atypical employment and involuntary part-time employment); (ii) security (using indicators of public social expenditure and social security benefits); (iii) gravity of the economic situation by 2010 (using indicators of output gap, public debt, and bailout packages); (iv) gravity of social situation (essentially unemployment rate). By analysing a set of EU countries' performance (by simple OLS regression) in the indicators of flexibility and

security versus those of gravity Tangian finds that countries with high labour flexibility demonstrate no macroeconomic advantages. Moreover countries where high level of flexibility is combined with high levels of security show no advantages either, as the generous social security worsens macroeconomic performance indicators. The analysis however is based on contemporaneous correlations and do not take into account that adjustments in economic structures need time to be visible in terms of economic growth.

The monitoring of Member States' flexicurity performance using composite indicators has been proposed by the European Commission (see Manca et al. 2010) with the construction of a set of composite indicators measuring the 4 flexicurity components proposed by the Commission. Analysing country scores and rankings, the authors conclude that there is substantial heterogeneity across EU Member States in terms of how close they are to fulfil flexicurity "requirements". Geographical clustering in Nordic, Continental, Anglo-Saxon, Mediterranean and New Member States seems to be confirmed. A similar exercise (but less ambitious in scope and analysis) is done by Maselli (2010) who constructed a flexicurity index from two composite indicators (security and flexibility), assembling the indicators corresponding to two stages of the policy cycle, input and output. Maselli shows, once again, the idiosyncratic preference for flexibility and security of 19 EU European countries and finds clusters of countries (that only partially overlap with the clusters found in EC 2007, 2008 and in Muffels and Luijkx 2008 among others). Chung (2012), shows that the monitoring of state and effort levels (within the ESC model) using composite measures produce different clustering of countries and highlights the need to clarify at which level of state and effort flexicurity is addressed.

The approach based on composite indicators, while having the appeal of a summary measure enabling comparisons and benchmarking, has the disadvantage of hiding trade-offs between indicators, which could be important in explaining differentiated pathways to flexicurity and country responses to the current crisis. An additional difficulty is that composites mix together indicators measuring both state and dynamic concepts (and cause and effects variables), making the overall evaluation of flexicurity pathways even more difficult.

2.2 Flexicurity practices: new challenges

Most of the specialized literature reports variations in flexicurity regimes by looking at real policies put in place in specific countries and analyses the impact of these policies in terms of changes in flexibility or security of workers especially in light of the recent crisis (for an overview of practices see Eurofound 2010a,b and 2012).

Economic crisis damaged the economic and social fabric everywhere in Europe but with large differences across countries (see Section 2.3). In 2011 long term unemployment rate is at 1.1% in Austria while 6.3% in Bulgaria. In Finland the fraction of individuals with a temporary job in 2009 who moved to a permanent job in 2010 was 48.7%, while this figure was 10.6% in France, and 16.4% in Spain. In the same year, 27.8% of Spanish employees (but also 24.5% of the British) moved to lower qualification level (employment status and pay) with respect to 2009. This percentage was

14.5% in Germany. In 2010 the percentage of adult population (25-64) participating in education and training was 7.7 in Germany and 32.3 in Denmark while only 1.3 in Romania. In Denmark 1.4% of 2010 GDP is spent in active labour market policies, while in the Netherlands and France this figure is around 0.8%. Italy, instead, devoted 0.35% of GDP and Greece 2.2%.

Clearly the response to the crisis not only depends on the degree of flexibility or security in place in different countries, but rests heavily on the institutional configuration which finally limits the leverage forces for counter-acting actions (Letschke and Watt 2010, and Meardi 2011) and on the degree to which social partners can act as brokers of divergent interests (Voss, Dornelas, Wild and Kwiatkiewicz, 2011).

Denmark (together with the Netherlands the home country of flexicurity) displays little protection against dismissal (high external numerical flexibility in the SFO model), high levels of income security via generous unemployment benefits and high levels of employment security (with high use of re-training, see Viebrock and Clasen 2009). The role of social partners is crucial as it enhances workers' acceptability of easy *hiring and firing* via the use of generous unemployment insurance system and, equally for employers makes the costly unemployment system worthwhile given a socially accepted flexibility in adapting the workforce to the changing market demand. A decreasing trend in unemployment and an increasing GDP per capita during the 1990s and early 2000s together with the traditional Scandinavian welfare state that protected the "working poor" contributed to the success of the model worldwide. The economic crisis however brought rising unemployment levels, degreased real GDP growth (Figure 4, Figure 5) and scaled back some income security policies (Jorgensen, 2011) reducing the glittering of the golden triangle.

Flexicurity in the Netherlands has been characterized by less emphasis on activation policies and a flexibilization of the labour market during the 1990s (with *the Flexibility and Security Bill*, see Wilthagen 2007). The increased flexibility was reached by (slightly) reducing the strong protection granted to workers with standard employment contracts and at the same time by increasing the protection of workers in flexible employment (via e.g. right to train, wage guarantees, supplementary pensions). Measures to spread work, care, and education over the lifetime have also been taken. Similarly to Denmark, the role of social partners has been crucial for the legitimation of flexicurity in the Netherlands. In recent years, however, the Dutch trade unions criticized the unbalanced effects of the *Flexibility and Security Bill* observing lower investments in education and training, higher feelings of insecurity among workers with temporary contracts and low transition towards open-ended job contracts (Tros, 2012). As a policy-response to the crisis the Dutch government introduced further flexibility into the system by increasing the number of repetitions permitted of a temporary contract before a regular contract has to be started.

In 2009 local Mobility Centers were established in the Netherlands in order to favour job-to-job mobility (originally, these were independent networks of several actors such as employers, training institutes, public employment services, private agencies etc., but since 2011 they are integrated into the structure of public employment). The objective of these Mobility Centers was the construction of tailor-made program for companies with redundancy problems (though a lot of SME could not enter the program due to accession conditions), promoting temporary and part-time unemployment schedules and offering at the same time fast outplacement in case of firing, and assistance for skill upgrade and skill recognition via training. In 2009 the Dutch government also introduced the Act

Investment in Young People offering learn-work trajectories to young unemployed under 27 (local authorities were obliged to offer such trajectories and young unemployed obliged to accept as precondition to obtain a welfare allowance). Even if the effectiveness of this plan in reducing youth unemployment is still under discussion (the plan was formally but not *de facto* abolished in 2012, see Tros 2012), positive feedbacks have been observed in longer school participation and training among young people.

The German response to the economic crisis is different from that of Denmark or the Netherlands and goes in the direction of an adjustment of working time schedule (Boeri and Brueckner, 2011). In some months of 2009 there were 1.4 million workers in Germany with short-time work and 30% of firms implementing some form of reduced work-hours (Tros, 2012). Work-time reduction was also used as a temporary buffer in Italy (via a "solidarity contract" within firms facing risk of dismissals), Sweden and Finland (together with transition security measures like Step-in jobs for migrants in Sweden, or Flexicurity Committees in Finland see Tros, 2012 and Wilthagen, 2012).

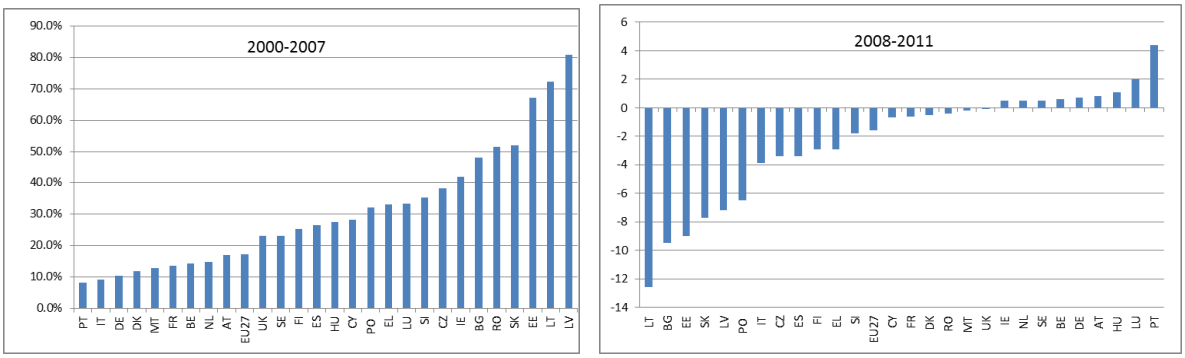
With much more flexibility than security, Anglo-Saxon countries (UK and Ireland) responded to the economic crisis mainly through dismissals (especially of migrants) and informal reduction of working hours (UK). Ireland pushed lifelong learning through *Skillnets*, networks of private companies delivering training, and the UK created the Early Warning System and a Rapid Respond Services to facilitate job-to-job transition and put in place programs for smoothing the learn-work transition of youth unemployment (Wilthagen 2012). Strengthening of lifelong learning is also a challenge in Spain which experienced heavy dismissal of employees (both native and migrants). Spain is indeed the country with the highest unemployment rate in Europe with a general unemployment rate of 25% and 53,2% of youth unemployment in 2012.

Central and Eastern European countries display, in general, below average performance in flexicurity and security. The exposure to the globalized market has forced these countries to rationalize production and contain labour costs, mainly achieved through downsizing, fixed-term contracts and informal employment (Cazes and Nesporova, 2001 and 2007); the consequent worsening of workers' employment and social security positions encouraged governments to push for a better balance between flexibility and security. This response varied depending on national specificities: Baltic and some Central European countries have implemented flexicurity policies similar to those in the western countries, while in Balkan countries labour market rigidities persisted together with high unemployment and weak income security (Cazes and Nesporova, 2003). The Economic crisis hit eastern countries, increasing unemployment and worsening real GDP growth (see Figure 4, Figure 5). The worst cases are Latvia where the unemployment rate doubled, reaching 16.2% in 2011, and real GDP decreased by 14%; and Lithuania where the unemployment rate almost tripled from 5.3% in 2008 to 15.3% in 2011 together with a decrease in real GDP of 8.5%. Poland is an exception (together with Slovakia) with an increase in unemployment similar to the EU average (reaching 9.6% in 2011) and an increase in real GDP of 10% in 3 years. The response to these challenges has been country-specific and mostly managed through redundancies and shortening of working time along with limited income support (Wilthagen 2012 and Borghouts 2012).

3. The dimensions of flexicurity in times of crisis: facts and figures

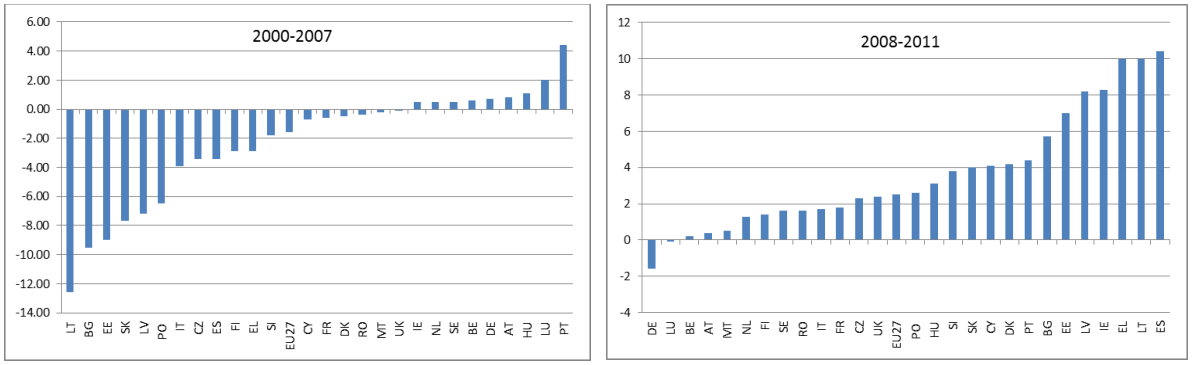
The period 2000-2007 has been a period of general decrease in unemployment and increase in real GDP for almost all European Countries (Figure 4, Figure 5). However, in almost all EU countries youth unemployment has shown to be much more flexible (decreasing or increasing more significantly) than the unemployment rate of over 25 (Figure 6). In this period, Germany, Sweden and Portugal experienced a worsening of the youth unemployment figures and also have the highest shares of young people (below 25) on temporary contracts (above 57%, see Figure 7). The use of temporary contracts is much more widespread for young age cohorts than for the total working population (Figure 8).

Figure 4. Gross Domestic Product at constant (2005) prices. Percentage change 2000-2007 and 2008-2011



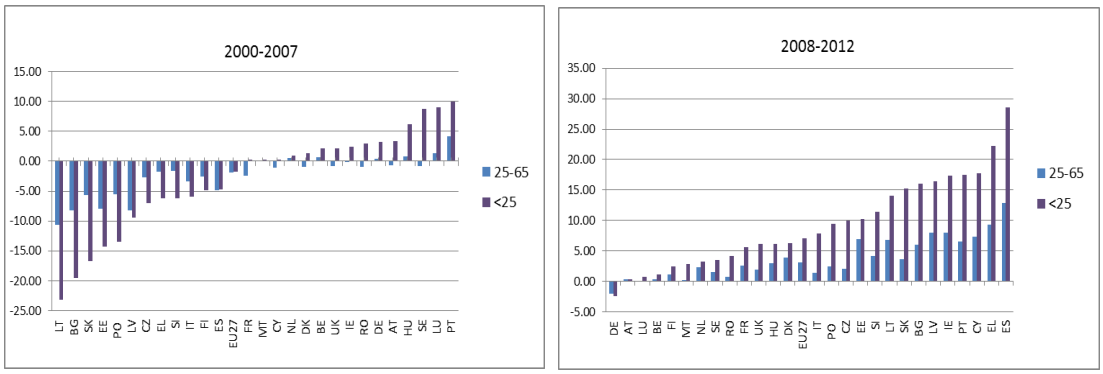
(source: AMECO database)

Figure 5. Unemployment rate: delta 2000-2007



(source: Eurostat LFS, annual data)

Figure 6. Unemployment rate for two age brackets (below 25 and 25-75): delta 2000-2007 and 2008-2011



(source: Eurostat LFS, annual data)

After 2008 economic performance drastically changed. GDP decreased in real terms in most of the EU countries and unemployment increased everywhere in Europe but in Germany (Figure 4, Figure 5).

During the crisis period 2008-2012, the youth unemployment rate increased much more than the corresponding figure for the adult workforce (Figure 6) especially in the Eastern and Southern countries. During recessions, employers tend to freeze recruitment processes, thus preventing early school leavers from finding a job, but according to Boeri (2011) the presence of a dual labour market has worsened the position of young generations even further as it induced mass dismissals of young workers with temporary contracts. Indeed in 2011 the ratio of youth to total employment has decreased everywhere in EU with respect to 2000 (Figure 9). Moreover, in almost all EU countries (with the exception of BG, MT, PL, RO, SK, DE and UK) the fraction of individuals with at least the same employment security as in the previous year has dropped during the period 2007-2010, losing 15 percentage points in LV, 9 in EE and around 6 in LT, ES, HU and PT.

Temporary contracts, a typical measure of flexibility of labour market, are widespread for young workers before the crisis and have increased more for young cohorts during the crisis period (Figure 7): if in Poland 14 out of 100 young employee had a temporary contract in 2000, in 2011 this percentage is 65% vis a vis 23% for over 25s. Given that temporary contracts lower firms' incentives to invest in human capital formation and are usually associated with lower pay, more frequent career breaks and higher exposure to unemployment risks, these contracts are also those most penalized when economic downturn occurs.

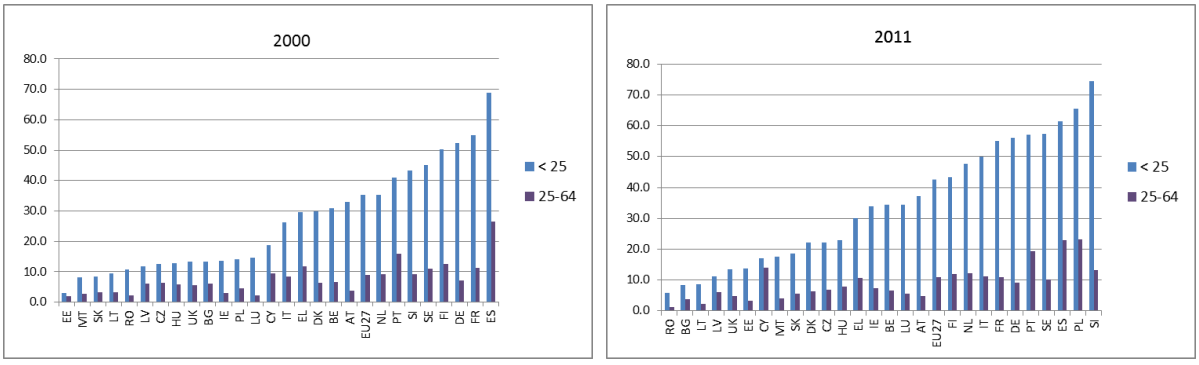
Temporary work does not seem a choice but rather a constraint of the labour market, worsened by the crisis. In 2011 the percentage of workers (aged 15-64) who could not find permanent job and accepted to work on a temporary basis is about 60% in EU27, but this figure spans from less than 25% in DE and AT, to above 90% in ES and CY. Involuntary temporary work has increased in the period 2007-2011 more than in the previous period in some and very diverse EU countries (in terms of balance between flexibility and security) like UK, DK, IE, LU but also CZ, EE, SK, LV, ES, IT (Figure 10).

The transition from temporary to permanent employment is typically a problem in times of economic crisis: 13 out of 100 EU employees had a temporary contract in 2009 but only about 3 of them moved to a permanent contract the year after (Table 1). The speed of conversion has decreased everywhere in Europe (but in DE, FI, CZ and RO) in the 2008-2010 time period. In Spain and Poland where more than a quarter of the total number of employees is temporary, the conversion rate is respectively 16.4% and 22.4% (Table 1). At the opposite side of the spectrum UK with 5.5 of temporary employees convert to permanent contracts at a rate of 72%.

Involuntary part-time does not show a common pattern across EU countries (Figure 10). In 2011 less than 2 out of 10 part-time workers were involuntary in UK, DE, DK, BE, AT,LU, NL CZ, MT, SI, while more than 5 out of 10 declared the same in IT, ES, EL, BG, CY, RO. In most of these latter countries (with the exception of RO and BG) involuntary part-time has increased in the period 2007-2011 with respect to 2000-2007. The crisis influenced also the percentage of employees working overtime, which dropped everywhere in EU (except in DK and AT).

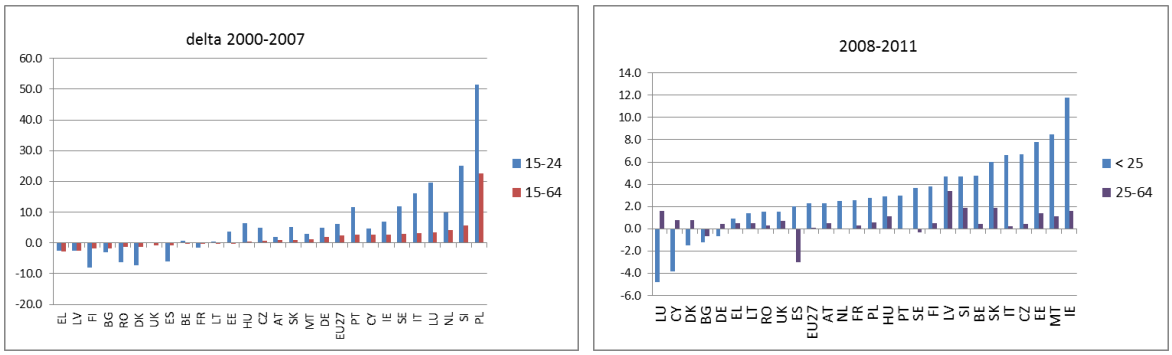
We find evidence of the "skill biased technical change": low educated paid the highest price in the current crisis: in 2007 up to 66% of youth unemployment and up to 76% of the inactive workers were low educated (ISCED level 0-2). The situation in 2011 remains unchanged: up to 63.7% young unemployed and up to 75% of inactive has at most a lower secondary education degree. The situation is particularly serious as a poor start for young generations (with temporary contracts) tends to imply lower lifetime wages, lower employment opportunities, and problems with future pension entitlements as temporary workers are generally not paying the same amount of pension insurance as workers with an open-ended contract (Boeri, 2011). This is the so-called "scarring" effect.

Figure 7. Temporary employees (%) for 2000 and 2011, different age brackets



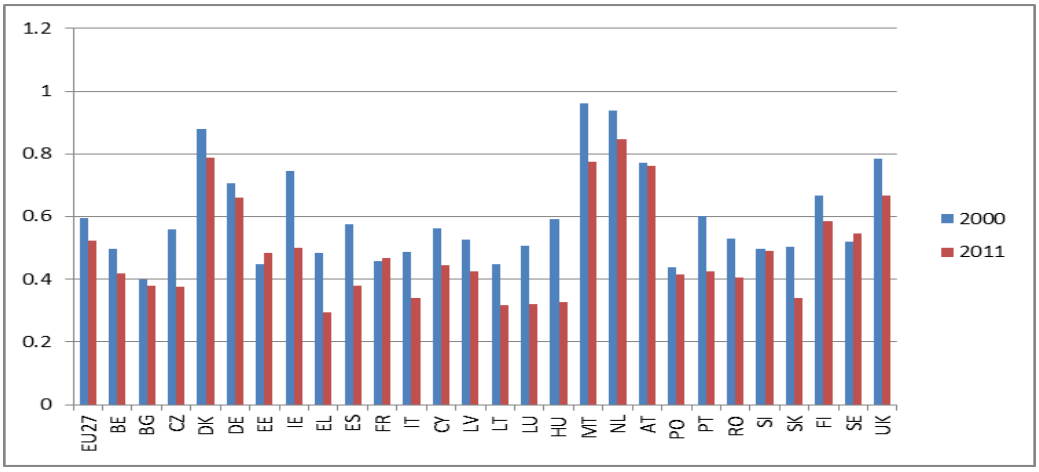
(source: Eurostat)

Figure 8. Temporary employees (%): delta 2000-2007 and 2008-2011



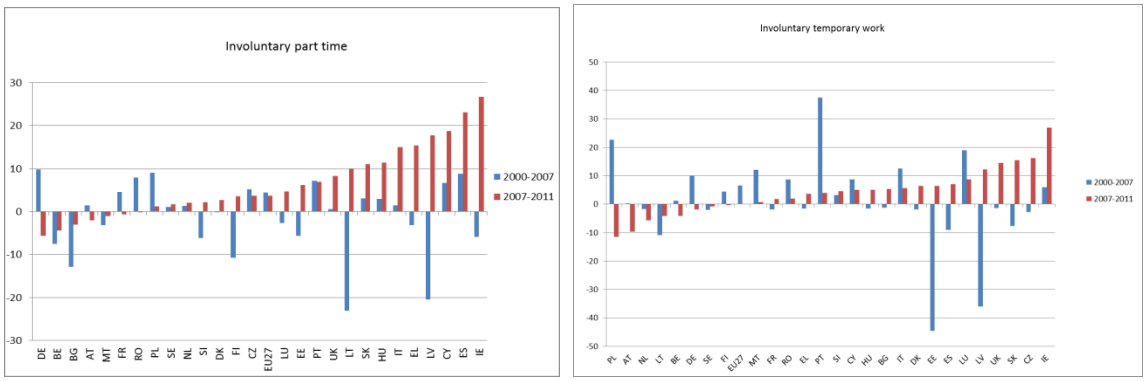
(source: Eurostat)

Figure 9. Youth-to total employment rate ratio. 2000 and 2011



(source: Eurostat)

Figure 10. Diversity and reasons for contractual and working arrangements: involuntary part time and temporary work rates. Delta 2000-2007 and 2007-2011



(source: Eurostat)

Table 1. Fraction of individuals moving from temporary (in t-1) to permanent jobs in t and % of temporary employees

	Fraction of individuals moving from temporary to permanent jobs		% temporary employees	hirings_rate (15-64)	separations_ rate (15-64)	hirings_rate (15-24)	separations_r ate (15-24)
	delta 2008-2010	2010	2009	delta 2007-2010		delta 2007-2010	
EU27	**-1.6**	**25.9**	**13.6**				
BE	-4.5	36.1	8.2	-1.85	0.80	-4.38	2.00
BG	-13	36.7	4.6				
CZ	0.7	37	7.5	-0.11	1.74	-2.25	4.48
DK	:	:	8.7	-6.84	3.53	-12.88	13.77
DE	3.8	41	14.6				
EE	-54	17.2	2.5	-1.02	8.67	0.23	15.61
IE	:	:	8.6				
EL	-1	18	12.1	-0.72	2.40	-2.02	5.30
ES	-4	16.4	25.5	-5.94	3.19	-8.90	7.12
FR	-1.6	10.6	14.3	1.99	1.96	9.26	6.05
IT	-4.1	25	12.5	-1.80	1.18	-6.12	3.04
CY	-7.1	22.1	13.8	-1.70	2.00	-5.90	5.90
LV	-17.7	35.3	4.4	0.08	7.88	-6.38	12.97
LT	-19.2	46.3	2.3	-0.81	6.36	-5.94	9.69
LU	-16.1	26	7.2	3.28	5.96	11.70	3.19
HU	-11.7	39.2	8.4	1.08	1.54	2.58	4.45
MT	-52.7	10	4.8	-1.14	1.69	-0.63	0.84
NL	-7.1	20	18	11.98	0.03	42.58	11.58
AT	-12.7	40.5	9.1	-0.52	0.61	-0.55	-3.33
PL	-7.1	22.4	26.4	-2.31	1.15	-6.75	2.13
PT	-5.3	29.6	22	-0.91	1.19	-0.37	1.71
RO	6.4	61	1	-4.83	2.07	-13.21	4.42
SI	-6.9	31.8	16.2	-2.55	-0.77	-12.90	1.64
SK	-17.6	39.9	4.3	-3.87	3.02	-5.98	6.20
FI	37.8	48.7	14.5	-2.10	1.03	-0.16	-2.92
SE	-2	43.9	14.9	-3.03	1.39	-6.36	4.35
UK	:	72.1	5.5				

(source EUROSTAT)

Overall flexibility seemed to increase during the economic crisis even in countries that are traditionally not flexible (like the Mediterranean ones). Looking at policy actions in the area of job protection (European Commission, 2012), it can be observed that since 2011, several countries have introduced changes in individual and collective dismissal, increasing probationary periods (RO, SK), easing dismissal rules (IT, PT, ES, EL, SK, CZ, UK), or allowing "staff loans" between employers (FR). In RO, LT, SK, and CZ the access to fixed term contracts has been facilitated by extending their scope, their duration or the number of allowed renewals. An increased flexibility, however, has not been reached thanks to well-defined policy strategy aimed at increasing at the same time security, but rather as a consequence of shrinking economic activity and the pressing need to consolidate public finances. Flexibility seems greater than before at the expense of young generations with temporary positions.

The Flexicurity thesis postulates that "a market with high employability levels also shows high levels of labour market turnover and employment security" (Muffels and Wilhagen 2013). The current crisis increased the long term unemployment rate (Figure 11) and the need to access forms of income support via unemployment allowances. High (or growing) levels of social security collided

with the constraints of a tight budget balance and a decreasing real GDP limiting the (already scarce) room for manoeuvring of some Member States (especially the Southern countries).

Indeed the expenditures on Active Labour Market Policies (Figure 12), increasing everywhere in Europe in the period 2000-2007 (with the exception of MT, IT, UK, PT and SI) suffered a drop in the period 2008-2010 in many countries. Latvia is an exception doubling the ALMP expenditures to 0.51% of 2010 GDP in spite of a sharp drop in both employment and real GDP. Among Eastern countries LV, EE, HU, SK, PL, and CZ increased ALMP contrasting LT, RO and BG that decrease them in a period of economic contraction. Activation policies in these countries represent different but low proportion of 2010 GDP: from 0.03% in RO (with similar values for EE and BG) to the 0.2% of CZ, SK, LT and 0.5/0.6% of LV and PL. In Nordic and Continental countries, with generous activation policies (1.40% of 2010 GDP in DK and 1.26% in BE) ALMP experimented a modest increase (around 20% in DE and AT) or a modest decrease (20% in NL and 10% in DK, Figure 12). The drop in ALMP expenditure has been also observed in countries with traditionally low activation measures: in Anglo-Saxon Countries with -19% in UK and -33% in IE, and in Mediterranean countries where reductions (-31% in ES, -14% in IT, -5% in EL) coexist with slight increases (8% in PT).

As expected, given the rise in unemployment, income support for out-of-work maintenance increased in all European countries in the crisis period. This increase was more pronounced in IE and ES where this form of support represent 2.9% and 3.1% of 2010 GDP respectively. The growth in out-of work maintenance was above the EU average in IE, SI, NL, DK, FI, IT, ES, and EE (Figure 13). Remarkably, income support not only increased in countries where security is usually high (like the Nordic countries) but also in countries where security is traditionally low like in Eastern countries.

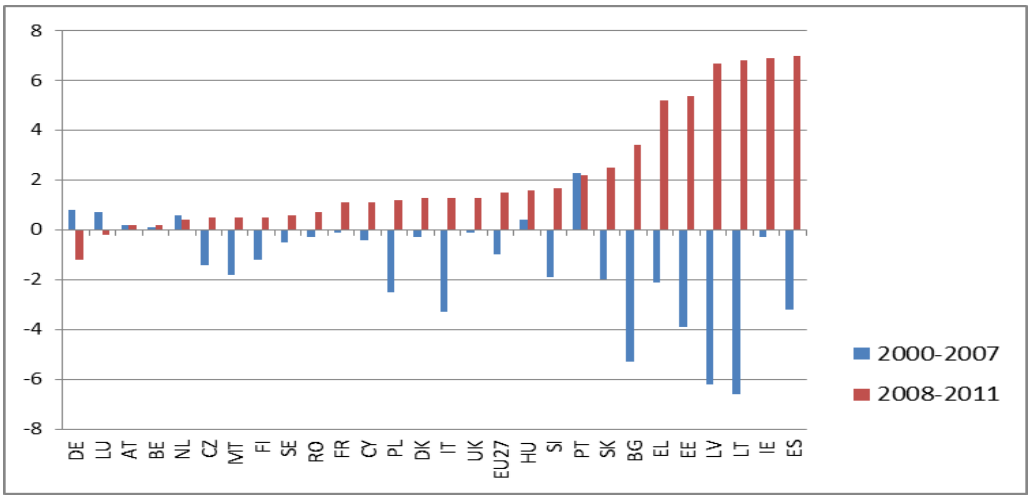
Out-of-work maintenance is useless in terms of bringing the unemployed back to work. As noticed by Andresen and Svarer (2007) *"… the flex and the security part of the Danish policy package cannot in isolation account for the drop in unemployment…"* and the shift of the policy focus from passive (pure support) to active labour market policies in the late 1990s was finally the catalyst for the success of the Danish flexicurity model. The relative share of these two types of support for EU countries in 2007 and 2010 (2009 for UK and EU27) is shown in Figure 22. Both in 2007 and in 2010, in most of the EU countries the financial effort devoted to sustain passive labour market policies (income support - LMP) is much higher than that directed to active labour market policies (ALMP). Exceptions are PL, SE, DK and SK that in 2010 spent about the same (or more) amount of money for the two types of policies.[15] Romania lags behind assigning, in 2010, about 20 times less money to ALMP than to LMP, together with Malta and Estonia that spend about 10 and 6 times less respectively. Notice that, with respect to 2007 both Malta and Romania decreased the share of resources allocated to ALMP in 2010. The same occurred in LT, BG, IE, ES and IT where tight budget constraints and rising unemployment induced to favour passive support. More in line with the flexicurity spirit, during the crisis period, Portugal displayed an increasing trend in ALMP expenses,

[15] Absolute values are rather different across countries. For LMP if NL that spends 11 thousand Euro per person wanting to work (DE spends about 6 thousands and, DK €5400 and SE €2400), Eastern and Baltic countries like SK, BG, PL, LT, LV spend around 5 hundred Euro or less. For ALMP the county spending more is BE with 6.5 thousand Euros. At the opposite side RO with €47.5 per person wanting to work.

however, only in CY, LV and HU the share of resources spent in ALMP has increased substantially[16] (albeit remaining low at the absolute level).

Out-of-work maintenance represents a safety net to protect income, but in spite of its growth in crisis time generalised income security remains pending. The rate of unemployed at-risk-of-poverty increased in many EU countries (Figure 14): not only in those having high unemployment rates (like ES, EL, IT and PT) but also in Germany where the unemployment rate is low (5.9% in 2011) and the welfare state generous if compared to Southern and Eastern countries. A German worker after 6 months of unemployment receives 40% less than what he or she previously earned, vis à vis a loss of 72% of SK (Figure 15). Being unemployed more than 6 months in the Baltic countries means a loss spanning from 55% to the 70% of what was previously earned. The luckiest unemployed live in the group of countries where flexicurity is high: after 6 months of unemployment a Finnish person loses 35% of his/her income and a Danish person only 16%. They keep receiving more than 60% of the wage earned when employed after 5 years of unemployment (with peaks of 74% in NL and 80% in DK). Spanish unemployed only keep one third of their previous net wage after 5 years, Bulgarian 21% and Romanian only 13%. This situation has been only marginally affected by the crisis.

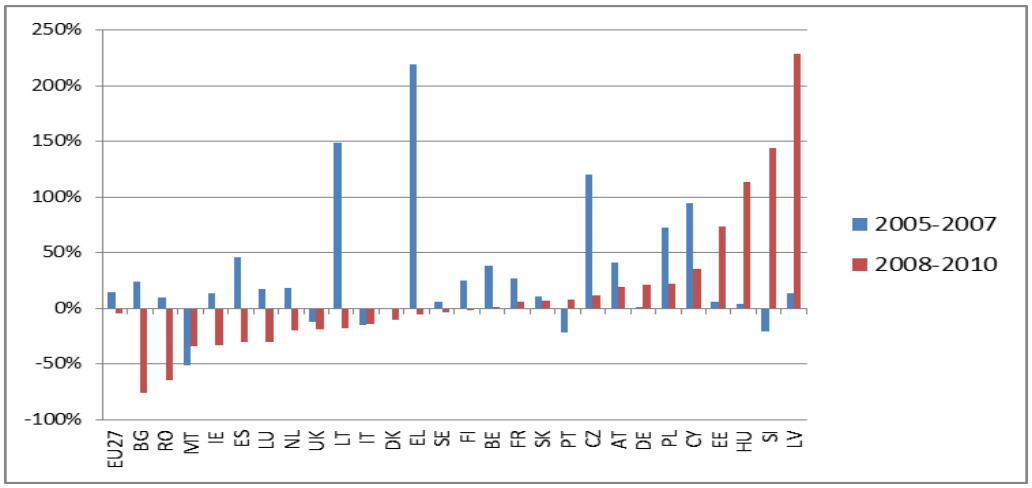
Figure 11. Long term unemployment



(source EUROSTAT)

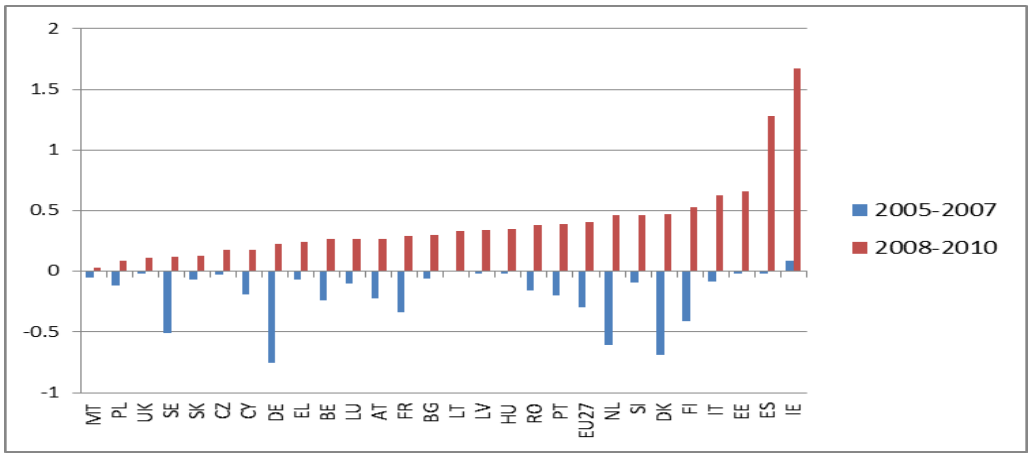
[16] CY increased the share of ALMP from 0.15 in 2007 to 0.30 in 2010; LV reached 0.43 in 2010 from a 0.27 in 2007 and HU moved from 0.34 to 0.42.

Figure 12. Expenditure on Active Labour Market Policies (cat. 2-7) per person wanting to work



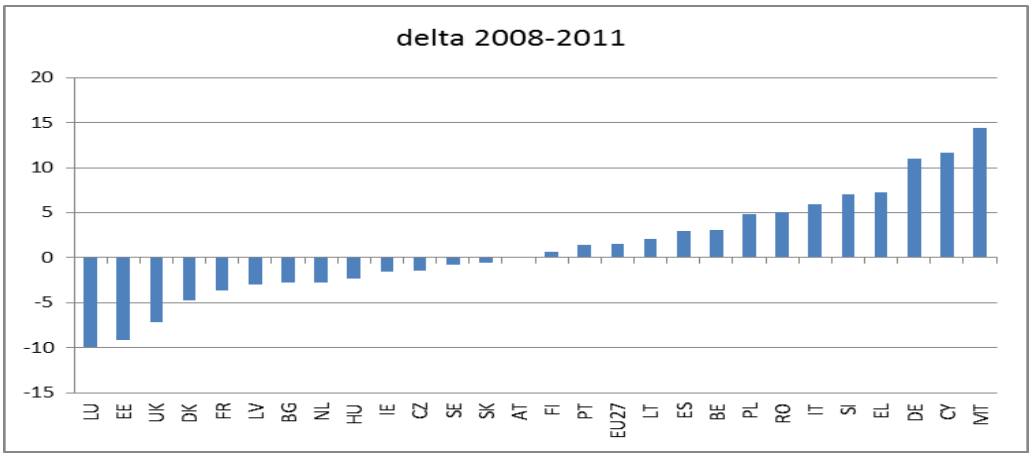
(in Purchasing Power Standards, source Eurostat, lmp_ind_exp)

Figure 13. Expenditure on LMP supports (cat. 8: out of work income maintenance) as % of GDP. Delta 2005-2007 and 2008-2010



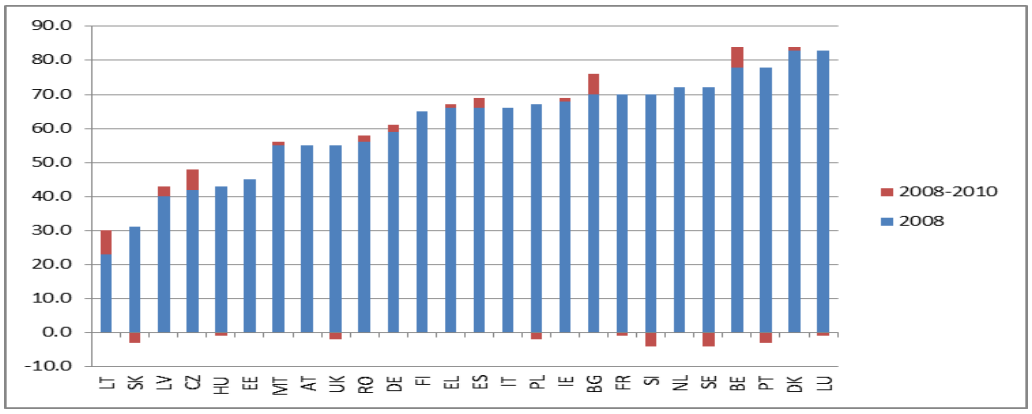
(source: Eurostat)

Figure 14. At-risk-of-poverty rate of unemployed (aged 18+)



(Source: Eurostat, ilc_li04)

Figure 15. Net replacement rate after 6 months of unemployment. Value in 2007 and delta 2007-2010



(Unemployment benefits relative to the wage previously earned (net of taxes), 7th month of unemployment, single person, 67% of average wage, Source: OECD and European Commission, Benefits and wages)

Since the start of the crisis, most EU countries undertook reforms to create more favourable conditions for employment. Activation and job-search assistance have been widely used to fight unemployment particularly in FI, DK, SE, IE, FR, LU, ES, PT. Wage subsidies and tax incentives to employers have been implemented in CY, ES, BE, FR, LV, EL, SE, BG, HU, and LU among others. An essential aspect of flexicurity is lifelong learning to ensure the continual adaptability and employability of workers, particularly the most vulnerable ones. Few specific indicators are available to measure lifelong learning and vocational training in firms.[17]

Public spending on education (as % of GDP) could be seen as the commitment of public policy to provide adequate human resources to the labour market and to the society. Overall in the period 2008-2009 (Figure 16) there has been a slight increase (at most about 1 percentage point) in the share of GDP devoted to Education (which is at the EU level 5.4% and spans from the 4.1% in SK to 8.7% in DK). This increase is partially due to the drop in GDP and to the fact that a large share of this expenditure is inelastic in the short term (essentially teachers' salaries). The drop in education expenditures, if at all, will take some time to become visible in the data as these types of expenditures react to economic conditions with some time lag. The same type of rigidity applies to the share of population 25-64 with tertiary attainment (Figure 17), where slow changes appear almost everywhere in Europe but where large disparities are present: countries with a share of tertiary attainment above 30% (not only countries where flexibility is comparatively high like NL, SE, FI, DK, UK, IE but also ES, LT, BE, EE, CY) coexists with countries where this figure is less than half (SK, CZ, IT, PT, MT, RO).

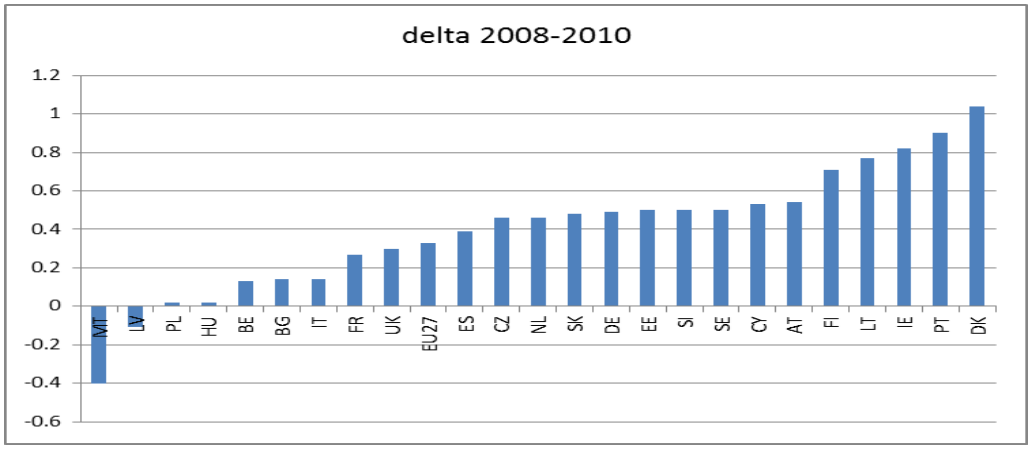
Investment of enterprises in training workers (direct and labour costs) has decreased slightly in many EU countries (notable exceptions are PT, BE and CY where participation to CVT increased substantially – 12 % points for the first two countries and 7 for CY), probably a response to the change in economic conditions and the raised financial pressure on firms (

[17] EUROSTAT- CVTS - Continuing Vocational Training Survey – offers data for two years (2005, 2010). Currently (Feb. 2013) 2010 data are missing for DK, DE, IE, EL, IT, LV, and SE.

Figure 21). New training schemes have been introduced and old schemes revised in many countries to assure a better skill match between labour supply and labour demand (e.g. in ES, EL, LT, LV, EE, but also in DE, BE, DK, and SE). Upgrading of skills has been pursued in Spain by strengthening the rights to train at work at take leave from work for training purposes (European Commission, 2012); internships and apprenticeship schemes have been encouraged in many countries (SE, FR, IT, UK, IE, LV, EE, LU, ES, DK) especially among young and unemployed.

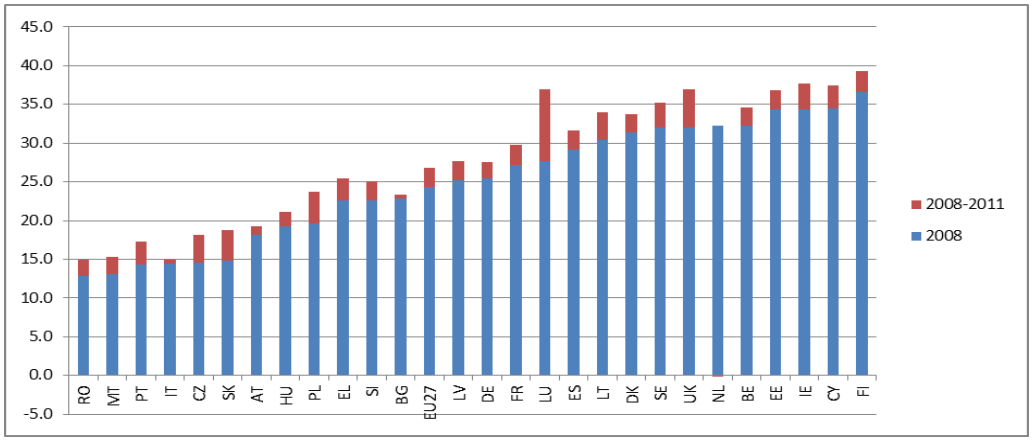
Computer and internet skills are an important ingredient of employability especially for the most vulnerable categories (young workers, women, immigrates, see the Tunis e-skills declaration, 2005[18]). An improvement in the share of population aged 25-54 with medium and high skills occurred in the period 2007-2011, while the evidence for low skilled is mixed. In some countries the digital divide seems to widen (Figure 19 and Figure 20): HU, DE, MT, FR, and BG for computer skills and PL, RO, BG, IT for internet skills. Notice that Germany and UK have the largest population (aged 25-54) with low internet-skills with 48% and 37% respectively, while for the lowest share of computer skills the leadership goes to PL and SK with 18% and 17%.

Figure 16. Total public expenditure in education as % of GDP, delta 2008-2010



(Source: Eurostat, tsdsc510, missing countries: EL, LU, RO)

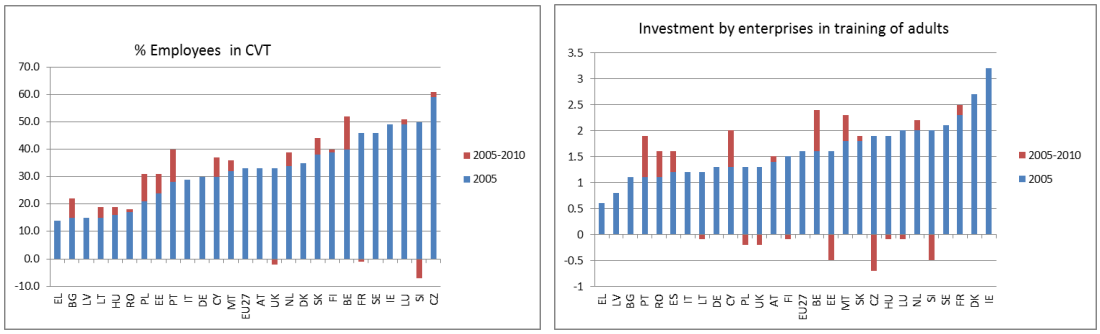
Figure 17. Total of persons [aged 24-64] with tertiary education attainment. Level in 2008 and delta 2008-2011



[18] Tunis e-skills declaration, 'e-skills capacity building for growth and employability: making the information society a reality', World Summit on the Information Society, Tunis, November 2005.

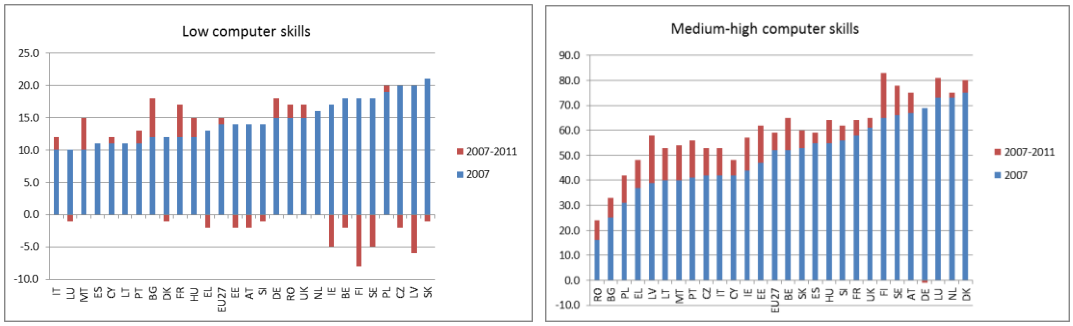
(source: Eurostat)

Figure 18. Continuing vocational training: % of employees and investment by enterprises. Levels in 2005 and delta 2005-2010



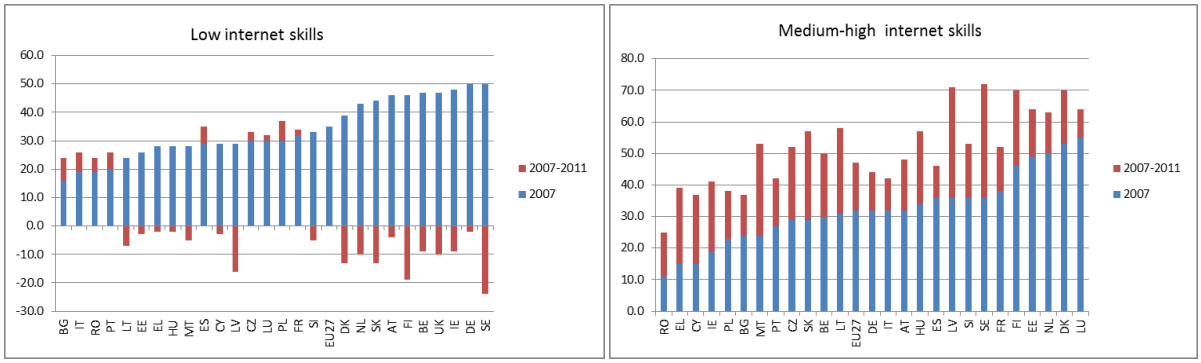
(source: Eurostat, CVTS survey)

Figure 19. Computer skills: percentage of people aged 24-54 having low or medium-high computer skills



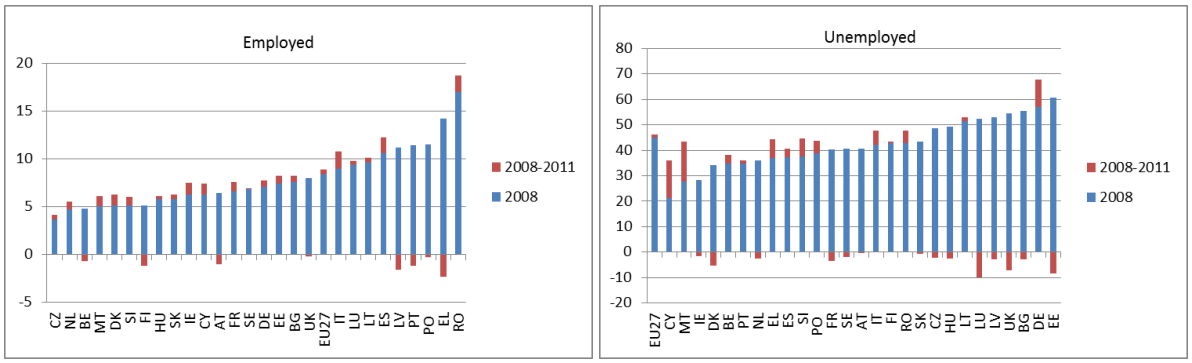
(source Eurostat, isoc_sk_cskl)

Figure 20. Internet skills: percentage of people aged 24-54 having low or medium-high computer skills



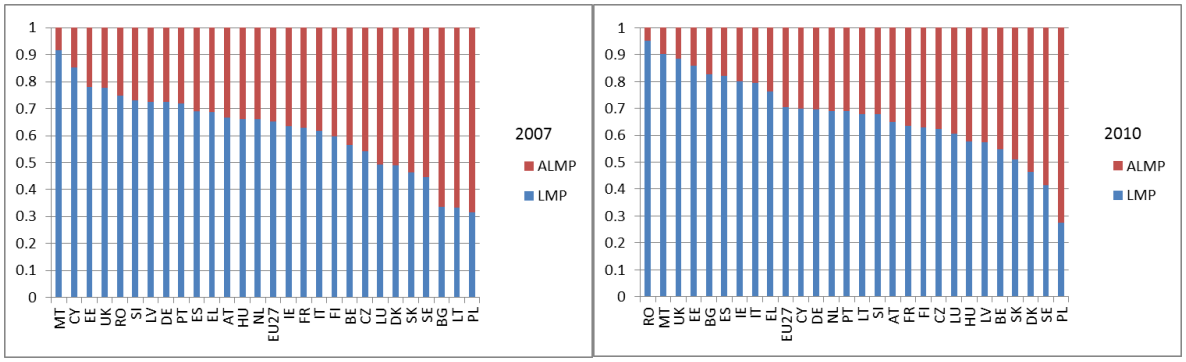
(source Eurostat, isoc_sk_iskl)

Figure 21. At risk of poverty rate (cut-off point: 60% of median equivalised income after social transfers) of employed and unemployed persons (age 16-64)



(source Eurostat ilc_li04, IE has data until 2010)

Figure 22. Relative proportion of expenditures on LMP supports (cat 8: out of work income maintenance) and on ALMP (cat. 2-7) – PPS per person wanting to work.



(source Eurostat, lmp_ind_exp UK and EU27 refer to 2009)

From the data analysed above, the additional flexibility obtained during the crisis does not seem to be compensated by a substantial increase in security. Rather the contrary, as security faced the restraints of sluggish growth and tight budget balance constraints.

Figure 21 confirms that after the beginning of the crisis the at-risk-of-poverty rate of employed persons increased in the majority of EU countries (with the exception of FI, BE, AT, LV, PT and EL). Likewise the at-risk-of-poverty rate of unemployed persons rose in many countries, notably ES, EL, IT, PO, RO, SI, DE, CY and MT.

Undoubtedly, in countries where flexicurity policies were/are in place (Nordic and Continental) the effects of the crisis (in terms of unemployment and GDP growth) have been less severe than in other countries characterised by high labour market rigidities as this implied more room for manoeuvring when deciding activation and support policies. However many historical and institutional factors, aside from the degree of flexicurity, played a role in the economic fate of the European countries. It is still unclear whether the increased flexibility will lead to economic advantages that in the long run will free more resources for upgrading security, or if on the other hand rising social inequality will unravel the social fabric and will ultimately damage the society and the entire economy.

4. Flexicurity in Europe: analysis of the EMCO and EMCO-modified list of indicators and proposal of a reclassification

The monitoring of flexicurity achievements was taken forward with the endorsement of a list of indicators (EMCO-list[19]) by member States. Then, a revised and enriched list of indicators (EMCO-modified list) was even proposed in 2010.

This section presents an up to date statistical analysis of the EMCO and the EMCO-modified lists of indicators adopted by the European Commission to monitor the four component of flexicurity. We highlight the major existing problems with data or definitions and provide a concise evaluation of statistical coherence for each indicator in each component in every country in order to obtain an appraisal of the relative performance of each EU Member State.

Both analysis and reclassification have been presented and discussed at the Employment Committee (EMCO, sessions of October and November 2012). The reclassification proposal has been finally endorsed by EMCO with minor changes.

Below are the four policy components of flexicurity (which the present section focuses on) that were also reaffirmed within the EU-2020 strategy:

1. Flexible and reliable contractual arrangements;
2. Comprehensive lifelong learning strategies;
3. Effective labour market policies;
4. Modern social security systems (further divided in: 4.a. Social security systems and 4.b. Reconciliation of work and private life).

[19] EMCO/25/240609

4.1 Flexible and reliable contractual arrangements

The component on *flexible and reliable contractual arrangements* aims to capture the first part of flexicurity dimension: the flexibility in the labour market allowing companies to make quick and efficient adjustments to their workforces.

According to the economic theory, employment regulation must facilitate these necessary flexible work arrangements both externally and internally. The more restrictive employment law is, the higher the probability is that companies start using "non-standard" contracts to achieve the flexibility that they need. Furthermore, rigid employment legislations are an unnecessary cost burden for companies in Europe.
The set of 9 indicators proposed to measure this first component are detailed in the following paragraph. Indicators are heterogeneous in terms of data-type and time coverage, so we use standardization methods (i.e. z-score) to reach a homogeneous ground for comparison.
All but the first one, *Access to flexitime*, are included in the EMCO-modified list.

Indicators

1. *Access to flexitime* (source: Labour Force Survey (LFS) *ad hoc* module; 21.A4). This indicator measures the percentage of employees with flexible working time arrangements. It's not included in EMCO-modified list and data is available for 2004 only.

2. *Employment Protection Legislation of temporary workers vs. regular workers* (source: OECD). This composite indicator quantifies the regulation of fixed-term and temporary forms of employment. Overall 21 basic items are classified in three main areas: (i) protection of regular workers against dismissal; (ii) regulation of temporary employment; (iii) specific requirements for collective dismissals. Data is available for a subset of EU countries from 2000 to 2004 while almost complete data series are available from 2005 to 2008. Only two data points exist for 2009.

3. *Diversity and reasons for contractual and working arrangements* (source: LFS; *21.M2*). This is a measure of the share of employees working in permanent contracts or in voluntary fixed-term or part-time contracts. Data is available from 2000 to 2011. For the present analysis we used the *Total employees in part-time and/or fixed-term contracts plus total self-employed as % of persons in employment* although data is also available for the following three sub-definitions of this indicator (but it is unclear what has to be considered):

1. "*Total employees part-time and/or fixed-term contracts plus total self-employed as % of persons in employment*";
2. "Employees in non-standard employment (part-time and/or fixed-term) as % of total employees". This indicator also has several sub-specifications;
3. "Total self-employed as % of total persons in employment". This indicator is then sub-classified into "part-time" and "total".

EMCO-IG finally decided to include two separate indicators of *Diversity*: the share of *involuntary part-time* and the *share of involuntary fixed term contracts*.

4. *Employees with overtime work* measures the percentage of employees working overtime. Data is from 2000 to 2010. This indicator has exactly the same reference (EMCO 21.A3) as that attached to *Overtime hours*. EUROSTAT does not provide a differentiation between work and hours except for 2004 (LFS ad hoc module), where many possible series can be taken. It is not clear whether the distinction between hours and work has to be conserved and if this is the case which series for overtime work need to be chosen.

5. *Transition by contract* (source: Eurostat Survey on Income and Living Conditions – EU-SILC) measures the fraction of individuals with at least the same employment security as the previous year. Data is from 2006 to 2010 (few data points in 2011). Data is updated in EUROSTAT databases [Labour transitions by type of contract - Changes in employment security, ilc_lvhl33].

6. *Overtime hours* (source: LFS ad hoc module). Data available for 2004 (see above *Employees with overtime work*).

7. *Job tenure* (source: LFS; PA2-S4). It's measured in years and data is available from 2000 to 2011.

8. *Labour turnover* (hires and separations) (source: LFS) measures the number of workers who either change employment status (e.g. from employment to unemployment) or move between jobs. Labour Turnover is the sum of the two components – the number of hirings and the number of separations. Data are available from 2000 to 2010 for all EU countries but DE, UK and IE (complete series for all but DE, UK, IE only from 2008).

9. *Transition from temporary to permanent employment* (source: EU-SILC) measures the percentage of individuals moving from temporary to permanent jobs over total or neutral transitions. Data is available from 2006 to 2010 (few data points in 2011). Data is updated in EUROSTAT databases [Labour transitions by type of contract, ilc_lvhl32].

Difference with the Joint Assessment Framework[20]

The *Overall indicator* and most of the *sub-indicators* of JAF (Policy Area 2 *Enhancing labour market functioning, combating segmentation*) are included in the EMCO-modified list (Figure 23 and Figure 24). Exceptions are the breakdowns by gender of the overall indicator (*Transition by type of contract*), present in JAF but not in the EMCO-modified list (nor in the EMCO list).

[20] Foundations and structures for a Joint Assessment Framework (JAF), including an Employment Performance Monitor (EPM), to monitor the Employment Guidelines under Europe 2020 . The JAF considered was that prior to the revision taking place since mid-2012 and not yet finalised.

Figure 23. List of indicators for flexible and reliable contractual arrangements

Component 1: Flexible and reliable contractual arrangements			
Indicator list	**source**	**direction**	**time coverage (complete series)**
Access to flexitime	LFS Ad-Hoc module on work organisation and working time arrangements	+	2004 only
EPL for regular workers	OECD	-	2005 -2008
Diversity and reasons for contractual and working arrangements	EUROSTAT	+	2000-2011
Employees with overtime work hours	LFS	+	2000 -2010
Transitions by contract	EU SILC	+	2006 -2010
Job tenure in years	LFS	-	2000-2011
Labour turnover (hires and separations)	LFS	+	2000-2010(no DE, UK, IE)
Transitions from temporary to permanent employment	EU SILC	+	2006-2010
Overtime work		+	no data/definition

Figure 24. Map of indicators with respect to different policy classifications

Component 1: Flexible and reliable contractual arrangements			
Indicator list	**EMCO**	**EMCO-modified**	**JAF**
Access to flexitime	X		**context indicator (PA2)**
EPL for regular workers		X	**sub-indicator (PA2)**
Diversity and reasons for contractual and working arrangements	X	X	**sub-indicator (PA2)**
Employees with overtime work hours	X	X	**other context ind. (PA2)**
Transitions by contract	X	X	**main indicator PA2**
Job tenure in years	X	X	**sub-indicator (PA2)**
Labour turnover (hires and separations)		X	**sub-indicator (PA2)**
Transitions from temporary to permanent employment		X	**sub-indicator (PA2)**
Overtime hours		X	**sub-indicator (PA2)**
Transition by type of contract - males			**sub-indicator (PA2)**
Transition by type of contract - females			**sub-indicator (PA2)**

Analysis

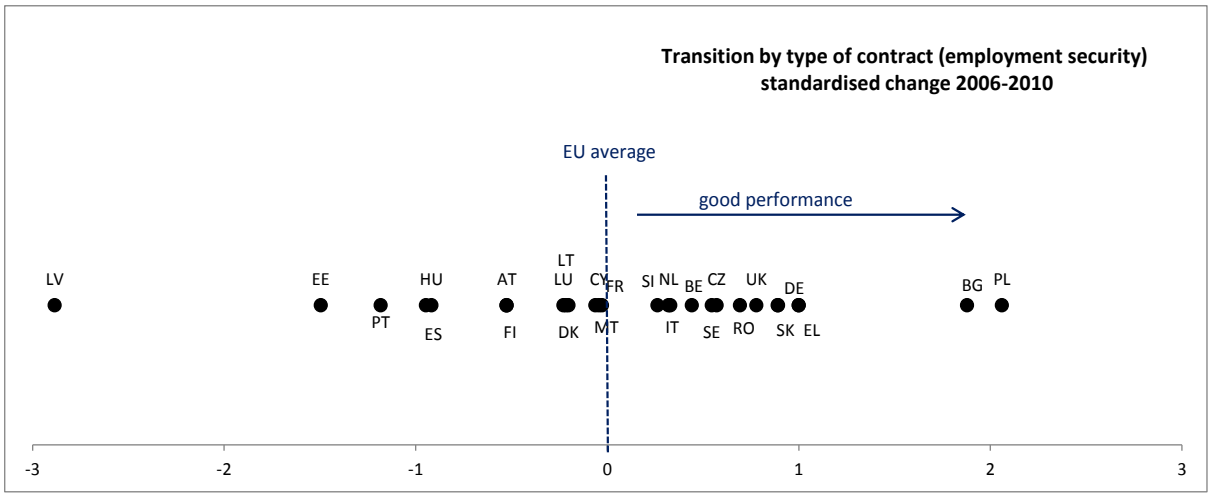
The performance of a selected set of countries in the last available year is shown below (the entire set of countries is available in Annex 1). Values are standardized[21] with EU average equal to zero.

Sweden is the only country with all indicators above average followed by Denmark, Austria and the Netherlands. No country has all indicators below average. *Diversity and reasons for contractual and working arrangements* (last available year 2008) and *Employees with overtime (work) hours* (last available year 2009) are the 2 indicators with the highest number of performances below the average (18 countries), followed by *Access to flexitime* (with 17 countries but based on a data series of 2004) and *Labour Turnover* where 15 countries are below the EU average in 2010. The lowest performance in *Labour turnover* is for RO with -12.2 followed by EL with -7.9. SE and DK have the highest (above average) performance in *Total overtime hours*.

Job tenure in years (last available year 2010) and *Employment Protection Legislation of temporary workers vs. regular workers* (last available year 2008) are the indicators with the lowest number of below average performance.

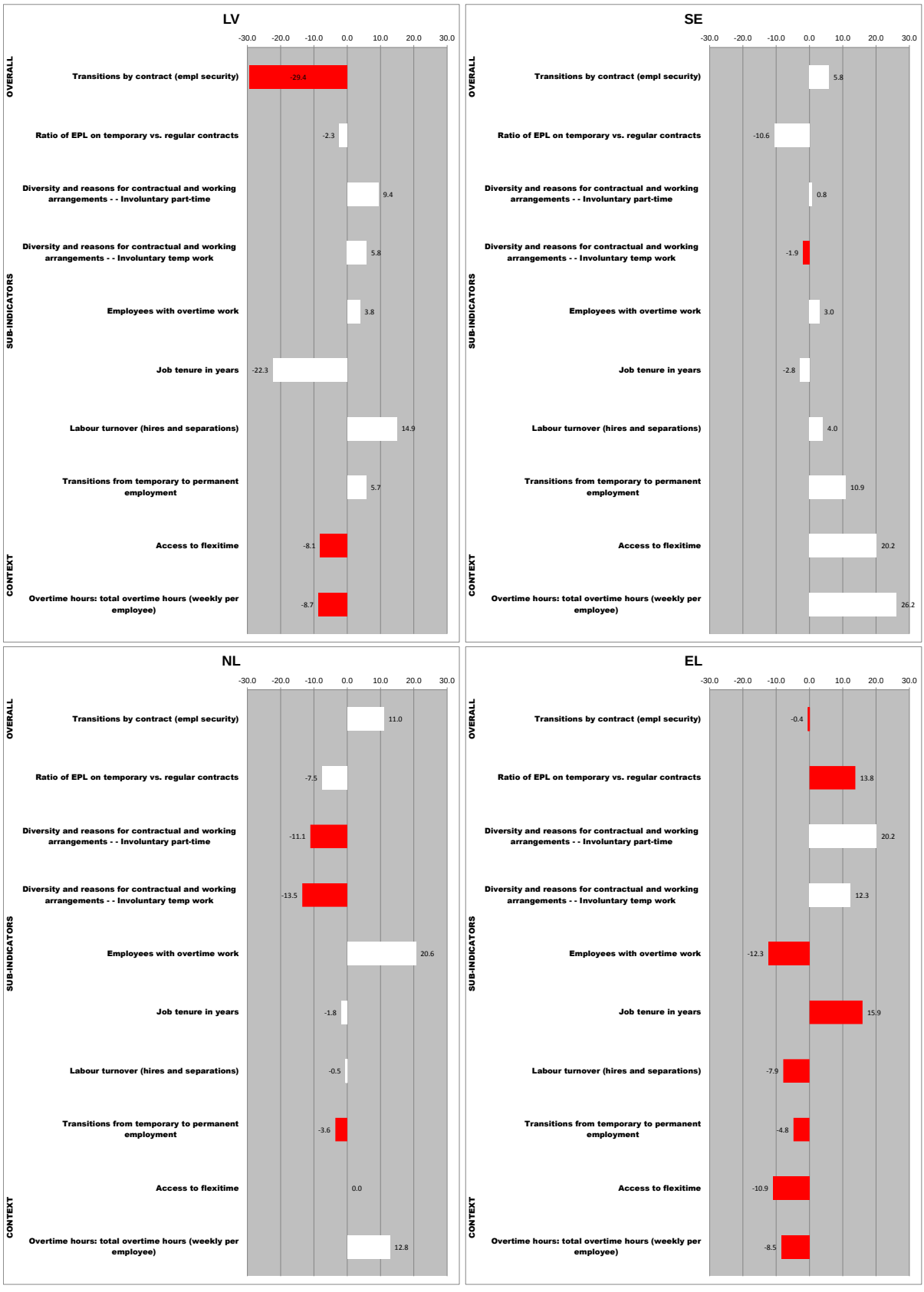
BG, EE, ES, LV, HU, but also PT and FI display a below average performance in *Transition by contract* (the main indicator of this policy area in the JAF). Some of these countries (notably EE, ES, LV, HU PT and FI) also display a below average growth rate in the period 2006-2010 (Figure 25). Bulgaria, instead, couples the below average performance in 2010 with the second highest positive growth rate during 2006-2010 (the first belong to PL).

Figure 25. Transition by type of contract (employment security): standardized (compound) changes between 2006-2010 (IE missing)



[21] The method used is the z-score. The EU average is subtracted to each value and the difference divided by the standard deviation of the sample. The last available year is used.

Chart 1. Bar charts of component 1: *Flexible and reliable contractual arrangements*. Selected countries



In order to see the relationship between components we calculate the correlation coefficients (Table 2) which are not significantly different from zero (5% significance level) in the majority of cases. In particular *Diversity and reason for contractual working arrangements (involuntary part time and involuntary fixed term)* and *Transition from temporary to permanent employment* are statistically not correlated with any other indicator of their group. *Transition by contract* (overall indicator of this component of flexicurity) should be positively related to all the indicators of this component but *Job tenure* and *EPL for regular workers*. This is actually not the case with *Labour turnover* where the correlation is significant and negative (-0.61).

A more in-depth analysis on the structure of this component is conducted using Principal Component Analysis (PCA). This statistical technique manipulates the data with the aim of highlighting common latent dimensions or "explanations" in the data. PCA exploits the correlation between the indicators to reveal shared patterns of behaviour in indicators or single out indicators that have an autonomous explanatory power.

PCA applied to Component 1 reveals 3 different statistical patterns of behaviour (Table 3): the first group of indicators behaving similarly (they represent 25% of total information in the dataset) are *Involuntary fixed term (Inv_fixed term), Employment Protection Legislation for regular workers (EPL)*, *Transition by from temporary to permanent employment (Transition_tp)* and *overtime hours (Overtime_hours)*. *Transition by contract (Trans_contract), Labour turnover (Turnover)* and *Job tenure (Job_ten)* share the second latent factor (representing another 25% of the information). *Involuntary part-time (Inv_part time)* and *Overtime work (Overtime_work)* stand alone as behaving differently from the rest of indicators but representing 18% of the information.

Overall, this component presents a high statistical heterogeneity and data problems (missing countries and old data). The behaviour of sub-indicators is not always in line with what is theoretically expected and the PCA highlights the multidimensional nature of this component. After 2 rounds of consultation the EMCO-IG finally endorsed the classification reported below.

JAF Reclassification: Flexible and reliable contractual arrangements

Objective: The component on *flexible and reliable contractual arrangements* aims at capturing the first part of flexicurity dimension: the flexibility in the labour market allowing companies to quick and efficient adjustments of their workforces.

Indicators

Overall Indicator

1. *Transition by contract*

Sub-indicators

2. *Diversity and reasons for contractual and working arrangements*

   Share of employees on involuntary part-time (taken because of: could not find full-time job") available as share of total employees.

Share of employees on involuntary fixed-term work (taken because of: could not find full-time job") available as share of total employees.

3. *Employees with overtime work*.
4. *Average overtime hours*
5. *Job tenure in years*
6. *Labour turnover* (hires and separations)
7. *Transition from temporary to permanent employment*
8. *Employment Protection Legislation of temporary workers vs. regular workers*

One indicator is excluded from the list of overall/sub-indicators as it is not included in the EMCO modified:

Access to flexitime (source: Labour Force Survey (LFS) *ad hoc* module; 21.A4). This indicator measures the percentage of employees with flexible working time arrangements. It's not included in EMCO-modified list and data are available for 2004 only.

The indicator is highly correlated with *Employees with overtime work* and it does not provide autonomous explanation in the Principal Component Analysis. EMCO included it finally in the list of contextual indicators.

Table 2. Pairwise Pearson Correlation of the indicator in component 1. Flexible and reliable contractual arrangements (data for the last available year, in red correlations significant at the 5% level)

	Inv_part time	Inv_fixed term	EPL	Overtime_work	Trans_contract	Job_ten	Turnover	Transition_tp	Overtime_hours	Flexitime
Inv_part time	1.00	-0.12	0.12	0.36	-0.09	0.12	0.34	0.01	0.17	0.57
Inv_fixed term	-0.12	1.00	0.43	-0.18	-0.17	0.34	0.06	-0.39	-0.42	-0.23
EPL	0.12	0.43	1.00	-0.18	-0.04	0.30	0.08	-0.46	-0.40	-0.12
Overtime_work	0.36	-0.18	-0.18	1.00	0.31	0.11	0.23	0.08	0.16	0.88
Trans_contract	-0.09	-0.17	-0.04	0.31	1.00	0.34	-0.61	0.00	0.07	0.12
Job_ten	0.12	0.34	0.30	0.11	0.34	1.00	-0.60	-0.34	0.01	0.14
Turnover	0.34	0.06	0.08	0.23	-0.61	-0.60	1.00	-0.04	-0.02	0.30
Transition_tp	0.01	-0.39	-0.46	0.08	0.00	-0.34	-0.04	1.00	0.38	0.24
Overtime_hours	0.17	-0.42	-0.40	0.16	0.07	0.01	-0.02	0.38	1.00	0.21

Table 3. Principal Component Analysis on the indicators of flexible and reliable contractual arrangements

3.1 Without *Access to flexitime*

Eigenvalues of correlation matrix			Factor loadings			
	variance					
Eigenvalue	% Total	Cumulative		Factor 1	Factor 2	Factor 3
2.28	25.35	25.35	Inv_part time	0.135	0.216	**0.808**
2.15	23.90	49.26	Inv_fixed term	**0.745**	-0.272	0.092
1.69	18.81	**68.07**	EPL	**0.714**	-0.211	0.204
0.84	9.31	77.38	Overtime_work	-0.486	-0.073	**0.731**
0.68	7.61	85.00	Trans_contract	-0.434	**-0.732**	0.018
0.61	6.83	91.82	Job_ten	0.078	**-0.828**	0.369
0.47	5.24	97.06	Turnover	0.317	**0.817**	0.353
0.22	2.49	99.55	Transition_tp	**-0.532**	0.278	-0.241
0.04	0.45	100.00	Overtime_hours	**-0.620**	0.122	0.370

3.2 With *Access to flexitime*

Eigenvalues of correlation matrix			Factor loadings			
	variance					
Eigenvalue	% Total	Cumulative		Factor 1	Factor 2	Factor 3
2.75	27.47	27.47	Inv_part time	-0.461	-0.315	**0.619**
2.15	21.53	49.01	Inv_fixed term	0.458	0.132	**0.636**
2.09	20.92	**69.93**	EPL	0.367	0.067	**0.677**
0.89	8.90	78.83	Overtime_work	**-0.888**	0.074	0.224
0.69	6.95	85.78	Trans_contract	-0.280	**0.788**	-0.147
0.62	6.16	91.94	Job_ten	-0.173	**0.761**	0.477
0.47	4.73	96.67	Turnover	-0.058	**-0.890**	0.312
0.25	2.50	99.16	Transition_tp	-0.329	-0.170	**-0.523**
0.05	0.49	99.66	Overtime_hours	**-0.620**	-0.046	-0.232
0.03	0.34	100.00	Flexitime	**-0.893**	-0.058	0.349

4.2 Comprehensive lifelong learning strategies

The component *comprehensive lifelong learning strategies* is aimed at measuring the continual adaptability and employability of workers, particularly the most vulnerable. The 8 considered indicators are not homogeneous in terms of data coverage (Figure 26).

Indicators

Public spending in human resources (source: UOE; PA 8.2-S4; Eurostat: tsdsc510) measures the total public spending in education as % of GDP. Data is available from 2000 to 2008 with only a few data points in 2009.

Investment by enterprises in training of adults (source: CVTS, 2005, 2010; 23.A1) measures the direct and labour costs of participants divided by total labour costs. Data is available only for 2005 and 2010. Indicator not included in EMCO-modified list.

Lifelong learning (source: LFS; trng_lfse_01) measures the percentage of the adult population aged 25-64 participating in education and training, total. Data is from 2000 to 2011.

Participation in CVT (Continuing Vocational Training) (source: CVTS, 2005, 2010; 23.A2) measures the share of employees participating in continuous vocational training. Data availability is only for 2005 and 2010. Indicator not included in EMCO-modified list.

Gap in CVT participation between temporary and permanent workers. Data is not available.

Transition in labour status and pay level (source: EU-SILC; ilc_lvhl35) measures the transition to the same or higher qualification level (employment status and pay) as previous year or the transition to lower qualification level (employment status and pay) than last year. For the analysis we used the transition to higher qualification level. Data is available from 2006 to 2010 (few data points in 2011). Indicator not included in EMCO-modified list.

Educational attainment (source: LFS; edat_lfse_07) measures the total percentage of population aged 25-64 with tertiary education attainment. Several breakdowns are also available: age, sex, labour stats or ISCED level. Data is available from 2000 to 2011.

E-skills (source: ICT household survey; isoc_sk_cskl_i / isoc_sk_iskl_i) measures the percentage of individuals between 25 and 54 years old who have carried out low-level computer/internet activities These indicators are in the Eurostat database where are divided in several categories among which the most meaningful are 4: no skills, high skills, medium skills and low skills. On the whole, 8 breakdowns of information are available (i.e. Internet and Computer skills further classified in 4 levels: no skills, low skills, medium skills and high skills). For the present analysis we considered the low skills for both. Data availability spells out as follows (Table 7). About *Computer Skills,* low and high skills cover 2005-2007-2009-2011, while medium skills are only available for 2006. Concerning *Internet Skills*, low skills cover 2005-2007-2011, medium skills cover 2006-2010 and high skills cover 2005-2007-2010-2011. One last remark (also useful for a correct interpretation of bar charts) regards

the sign of this indicator. E-skills are intuitively associated with a positive effect on lifelong learning. However we're considering the lower bound of e-skills, therefore the expected sign is negative.

Difference with the Joint Assessment Framework

The *Overall indicator* and most of the *sub-indicators* of JAF (Policy area 8.2 *Lifelong learning*) are included in the EMCO-modified list (Figure 27). Exceptions are the breakdowns by unemployment status, gender and age cohort of the overall indicator (*Percentage of population participating in lifelong learning*) all present in JAF but not in the EMCO-modified list (nor in the EMCO list).

Figure 26. List of indicators for Comprehensive lifelong learning strategies

Component 2: Comprehensive lifelong learning strategies			
Indicator list	**source**	**direction**	**time coverage (complete series)**
Public spending on human resources:	Eurostat, UOE	+	2000-2008
Investment by enterprises in training of adults	CVTS2,3	+	2005, 2010
Lifelong learning (age 25-64)	LFS	+	2000-2011
Participation in CVT	CVTS2,3	+	2005, 2010
Gap in CVT participation between temporary and permanent workers		+	no data
Transitions in labour status and pay level	Eurostat	+	2007-2010
Educational attainment	Eurostat	+	2000-2011
E-skills	Eurostat	+	2010,2011, irregular data coverage

Figure 27. Map of indicators with respect to different policy classifications

Component 2: Comprehensive lifelong learning strategies			
Indicator list	**EMCO**	**EMCO-modified**	**JAF**
Public spending on human resources:	X	X	sub-indicator (PA8.2)
Investment by enterprises in training of adults	X		context (PA8.2)
Lifelong learning (age 25-64)	X	X	main indicator (PA8.2)
Participation in CVT	X		context (PA8.2)
Gap in CVT participation between temporary and permanent workers		X	
Transitions in labour status and pay level	X		sub-indicator (PA8.2)
Educational attainment	X	X	sub-indicator (PA8.1)
E-skills	X	X	context (PA8.2)
Lifelong learning (age 25-64) unemployed			sub-indicator (PA8.2)
Lifelong learning (age 25-64) employed			sub-indicator (PA8.2)

Analysis

The figures below show the performance of some member states within the component of *Comprehensive lifelong learning strategies*. Values are standardized (z-scores) around the EU average (equal to zero). All the EU countries are available in Annex 2. The last available year is used for computations.

Data show that Sweden is the only country where all indicators are above the EU average followed by DK, LU, NL. *Lifelong learning* together with *Transition by labour status and pay level* are the indicators where most of the EU countries (15 and 16 respectively) are below the EU average. *E-skills* is, instead, the indicator showing the best performance in 2011 (*Internet skills* come across as slightly better than *Computer skills*, 6 countries are below average in *Internet skills* while 9 for *Computer skills*). RO, SK, PL, IT, and BG have the highest number of below-average performance in this component.

Bulgaria has the lowest percentage of adult population engaged in *Lifelong learning* in 2011 and the growth rates in the last 5 years is around the EU average (-1.3) (see Figure 28). HU, LV and FR combine a below average performance in 2010 with a below average performance also in the period 2006-2011, while UK has a positive result in 2011 in spite of a negative growth rate in the 2006-2011. Portugal stands out as the country with the largest improvement in *Lifelong learning*.

Figure 28. Lifelong learning: percentage of adult population (25-64) participating in education and training. Standardized (compound) changes between 2006-2011

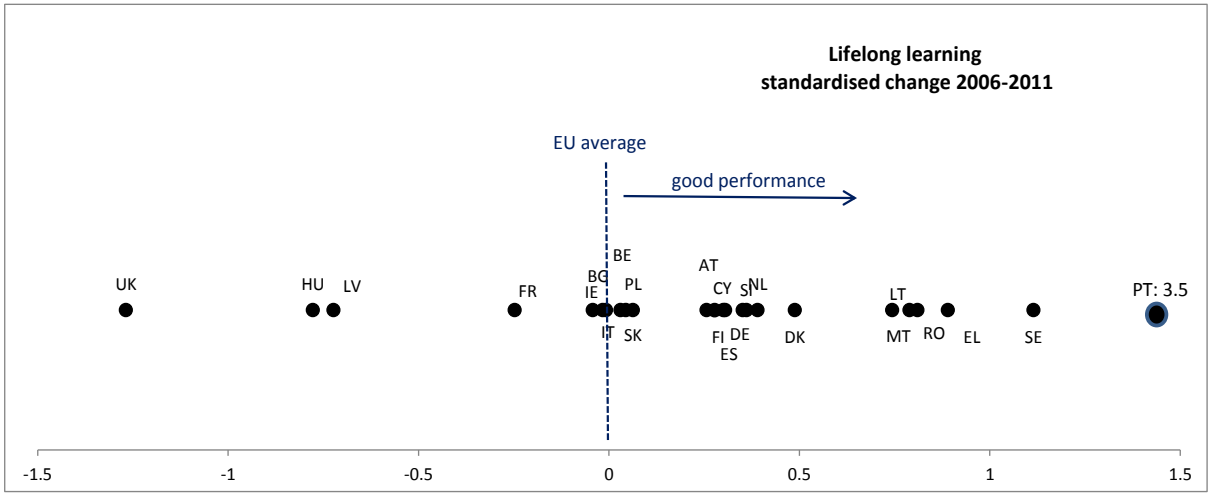
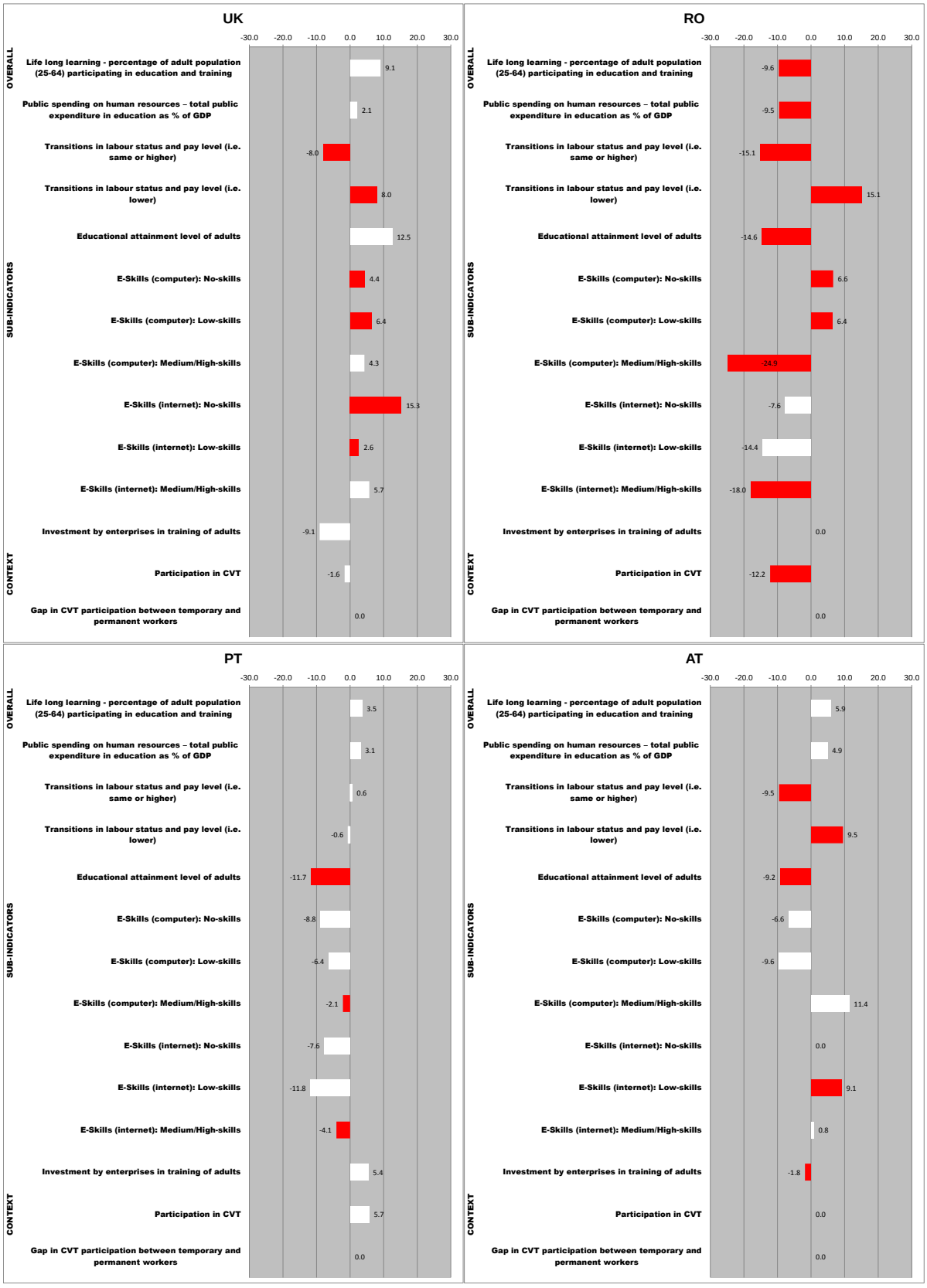


Chart 2. Bar charts of component 2: *Comprehensive lifelong learning strategies*. Selected countries



Note: data on *CVT gap* are not availe at the time of the analysis

Upon EMCO-IG request, we included internet and computer skills for low high and medium skills. Results however show poor correlations between low internet skills and all the other variables included in the EMCO-modified list for all the available years. Considering medium internet skills (calculations are not presented here but are available upon request), the correlation only improves for *Lifelong learning* (+0.62) but remains not significantly different from zero for *Education attainment* (+0.32) and *Public spending* (+0.15). *Computer skills (low)* are negatively correlated to both *Lifelong learning* and *Educational attainment* (*medium skills* confirm the negative correlation with 2006 data - 0.66 with *LLL* and 0.38 with *Ed_att*).

Correlation signs of *Lifelong learning* (overall indicator) are as expected: positive with *Spending* and *Educational attainment* and negative with *Computer skills (low)*. We expected a positive relationship with both LLL and the transition to higher employment status and pay-level, however this is not the case even when considering LLL lagged with respect to the year of transition (Table 4).

Table 4. Pearson Correlation of the indicator in component 2. Comprehensive lifelong learning strategies (data for the last available year, in red correlations significant at the 5% level)

Complete set of indicators

	Spending	Inv_train	LLL	Part_CVT	Ed_att	trans_higher	trans_lower	Int_low	Comp_low
Spending	**1.00**	0.28	**0.50**	0.03	**0.53**	0.17	-0.17	-0.14	-0.25
Inv_train	0.28	**1.00**	**0.44**	**0.68**	0.34	0.23	-0.23	0.28	-0.07
LLL	**0.50**	**0.44**	**1.00**	**0.47**	**0.46**	0.10	-0.10	0.05	**-0.41**
Part_CVT	0.03	**0.68**	**0.47**	**1.00**	0.24	0.28	-0.28	**0.45**	-0.05
Ed_att	**0.53**	0.34	**0.46**	0.24	**1.00**	0.23	-0.23	0.04	**-0.42**
trans_higher	0.17	0.23	0.10	0.28	0.23	**1.00**	**-1.00**	0.37	0.05
trans_lower	-0.17	-0.23	-0.10	-0.28	-0.23	**-1.00**	**1.00**	-0.37	-0.05
Int_low	-0.14	0.28	0.05	**0.45**	0.04	0.37	-0.37	**1.00**	0.31
Comp_low	-0.25	-0.07	**-0.41**	-0.05	**-0.42**	0.05	-0.05	0.31	**1.00**

Indicators in the EMCO-modified list

	Spending	LLL	Ed_att	Int_low	Comp_low
Spending	**1.00**	**0.50**	**0.53**	-0.14	-0.25
LLL	**0.50**	**1.00**	**0.46**	0.05	**-0.41**
Ed_att	**0.53**	**0.46**	**1.00**	0.04	**-0.42**
Int_low	-0.14	0.05	0.04	**1.00**	0.31
Comp_low	-0.25	**-0.41**	**-0.42**	0.31	**1.00**

By deepening the data structure with Principal Component Analysis (Table 5) we observe two latent dimensions gathering about 60% of data variability and two residual dimensions capturing about 20% of the information in the dataset. The indicators in the EMCO-modified list on *Spending (Spending)*, *Lifelong learning (LLL)*, *Educational attainment (Ed_att)* and *E-skills* (*medium computer and internet skills: Int_med, Comp_med*) but also some of the previous EMCO list (i.e. *Investment in*

training (Inv_train), *Participation in CVT* (*Part_CVT*) and *High computer skills (Comp_high))* have all the same unique latent dimension, meaning that they all behave similarly. Transition (*trans_higher, trans_lower*) and some of the breakdowns of e-skills instead are loaded by different latent dimensions highlighting divergent behavioural pattern.

Proposal endorsed: keep separate the classes no skills and low skills and merge (if at all) the medium-high skills[22],[23].

Motivation: (i) merging low, medium and high skills would leave low skills alone representing the complete lack of e-skills. This because data about "no-skills" looks unreliable (due to a small sample size) for both Computer- and Internet-skills (ii) Both the categories of low- and no-skills have the same negative (or inconclusive) correlation with the overall indicator while high and medium skills are obviously positively correlated with it. (iii) No-skills and low skills are significantly correlated between them and not correlated with medium-skills. Vice versa medium and high skills are correlated among them but not necessarily with no-skills and low skills.

Furthermore, EMCO finally decided to include CVT indicators in the list of sub-indicators. The indicator *Gap in CVT participation between temporary and permanent workers* (source: CVTS3, 2005) will be included as a contextual indicator and considered pending, depending on the development of the data collection.

JAF Reclassification: Comprehensive lifelong learning strategies

Objective: The component '*comprehensive lifelong learning strategies*' aims at measuring the continual adaptability and employability of workers, particularly the most vulnerable.

Indicators

Overall Indicator

1. *Lifelong learning*

Sub-Indicators

2. *Educational attainment.*
3. *Public spending in human resources*
4. *Transition in labour status and pay level. Transition to higher and to lower are included*
5. *E-skills: no, low and medium&high computer and internet skills.*

[22] Internet skills include the use of internet, e-mail, social networks, phone calls though the net, peer-to-peer file sharing for exchanging movies or music, creation of a Web page, download and installation of software, use of anti-viruses, and spyware. Low skills refer to 1-2 of these activities, medium skills to 3-4 and high skills to 5-6 internet activities.

[23] Computer skills include: use a mouse, copy a file, use cut-and-paste to copy files, use basic arithmetic formulae, compress files, write a computer program, connect and install new devices, connect computers to a local area network, detect and solve computer problems. Low skills refer to 1-2 of these activities, medium skills to 3-4 and high skills to 5-6 internet activities

Table 5. Principal Component Analysis on the indicators of Comprehensive lifelong learning strategies

Eigenvalues of correlation matrix, and related statistics Active variables only			Factor coordinates of the variables, based on correlations				
Eigenvalue	% Total variance	Cumulative variance		Factor 1	Factor 2	Factor 3	Factor 4
4.66	35.84	35.84	Spending	**-0.493**	0.178	-0.498	-0.105
2.85	21.94	57.77	Inv_train	**-0.622**	-0.264	0.112	0.451
1.69	12.99	70.76	LLL	**-0.854**	0.188	0.013	0.041
1.05	8.05	**78.81**	Part_CVT	**-0.631**	-0.388	0.287	0.415
0.86	6.65	85.46	Ed_att	**-0.655**	0.111	-0.413	0.048
0.69	5.32	90.78	trans_higher	-0.311	**-0.740**	-0.481	-0.255
0.51	3.91	94.69	trans_lower	0.311	**0.740**	0.481	0.255
0.28	2.13	96.82	Int_low	-0.216	**-0.764**	0.321	0.123
0.18	1.42	98.24	Int_med	**-0.765**	0.117	0.495	-0.266
0.14	1.06	99.29	Int_high	-0.378	**0.774**	-0.022	-0.251
0.07	0.51	99.81	Comp_low	0.375	-0.452	**0.482**	**-0.418**
0.03	0.19	100.00	Comp_med	**-0.771**	-0.054	0.362	-0.444
			Comp_high	**-0.877**	0.232	0.016	0.068

Table 6. Pairwise Pearson Correlation of some of the indicators in component 2. Comprehensive lifelong learning strategies (data for the last available year, in red correlations significant at the 5% level)

	LLL	LLL_unempl	LLL_empl
Comp_no	-0.44	-0.46	-0.42
Comp_low	-0.41	-0.37	-0.39
Comp_med	0.41	0.27	0.43
Comp_high	0.78	0.75	0.78
Comp-Med&High	0.74	0.67	0.75
Comp-LowMedHigh	0.70	0.61	0.71
Int_no	0.02	0.10	0.02
Int_low	0.06	0.02	0.06
Int_med	0.69	0.60	0.71
Int_high	0.38	0.29	0.40
Int_Med&High	0.64	0.54	0.66
Int_LowMedHigh	0.66	0.55	0.68

Table 7. Available data for Computer and Internet skills

25-54	Computer skills																					
	No skills					Low skills					Medium skills					High skills				
	2005	2006	2007	2009	2011	2005	2006	2007	2009	2011	2005	2006	2007	2009	2011	2005	2006	2007	2009	2011
EU27 EU15	2	8	10	12	10	17	14	14	15	15	29	25	26	26	28	26	25	26	29	31
BE	:	14	14	20	9	:	16	18	19	16	:	27	26	29	32	:	25	26	22	33
BG	:	7	10	16	16	:	13	12	14	18	:	15	17	20	20	:	7	8	9	13
CZ	:	10	10	22	17	:	19	20	17	18	:	24	24	22	26	:	15	18	20	27
DK	1	8	9	10	5	12	13	12	14	11	39	34	30	36	33	45	43	45	36	47
DE	: u	: u	9	10		25	18	15	16	18	38	35	36	34	37	27	31	33	34	31
EE	: u	20	17	21	15	18	12	14	11	12	21	21	22	23	25	32	25	25	31	37
IE	:	16	16	20	18	:	13	17	13	12	:	10	22	22	26	:	22	22	25	31
EL	0	0	5	14	11	14	16	13	15	11	17	16	19	18	19	10	18	18	15	29
ES	:	8	8	11	6	:	12	11	13	11	:	23	24	25	22	:	27	31	31	37
FR	:	12	12 u	12	10	:	12	12	12	17	:	28	28	28	30	:	27	30	34	34
IT	: u	3	4	5	5	6	9	10	11	12	21	20	19	22	23	23	21	23	27	30
CY	2	4	7	7	8	11	9	11	8	12	24	20	21	17	24	14	19	21	32	24
LV	0	16	14	25	11	26	19	20	14	14	25	21	26	25	28	11	11	13	17	30
LT	0	7	9	13	11	13	13	11	11	11	20	21	22	21	21	17	14	18	26	32
LU	1	8	6	5	7	13	12	10	11	9	27	28	31	34	32	45	39	42	45	49
HU	1	4	4	5	5	9	12	12	18	15	19	24	26	25	28	22	27	29	30	36
MT	1	0	8	16	10	10	: u	10	14	15	26	: u	22	19	27	18	: u	18	21	27
NL	1	10	8	7	7	17	16	16	12	16	37	30	34	30	36	39	39	39	48	39
AT	1	9	8	10	7	14	13	14	14	12	30	29	30	33	29	35	34	37	33	46
PL	1	15	17	21	18	22	19	19	20	20	22	18	20	21	24	11	10	11	14	18
PT	: u	9	5	5	6	11	10	11	12	13	17	15	18	18	24	23	22	23	29	32
RO	:	2	14	10	13	:	13	15	19	17	:	9	11	10	14	:	5	5	9	10
SI	: u	10	9	14	9	: u	13	14	14	13	26	24	26	25	26	: u	29	30	31	36
SK	1	8	10	12	8	20	21	21	21	20	39	32	34	37	36	20	18	19	23	24
FI	15	11	13	8	4	19	16	18	17	10	42	33	29	30	30	16	34	36	42	53
SE	3	10	14	17	6	19	17	18	22	13	38	35	34	33	27	37	35	32	27	51
UK	: u	16	15	16	12	17	13	15	16	17	33	31	32	28	30	34	30	29	33	35

25-54	Internet skills																					
	No skills					Low skills					Medium skills					High skills				
	2005	2006	2007	2010	2011	2005	2006	#	2007	2010	2011	2005	2006	2007	2010	2011	2005	2006	2007	2010	2011
EU27 EU15	4	2	3	2	2	38	36		35	37	35	19	20	24	33	36	5	6	8	10	11
BE	:	4	4	4	2	:	47		47	44	38	:	21	25	34	39	:	5	5	8	11
BG	:	1	1	2	5	:	12		16	27	24	:	15	18	21	27	:	5	6	8	10
CZ	:	3	2	2	2	:	36		30	37	33	:	14	18	36	40	:	4	11	7	12
DK	4	3	4	3	2 u	53	44		39	35	26	29	36	40	47	53	9	13	13	13	17
DE	: u	: u	: u	: u		49	50		50	46	48	23	28	31	37	38	: u	4	: u	9	6
EE	: u	: u	: u	: u	4	22	23		26	28	23	23	30	28	39	41	22	20	21	16	23
IE	2	2	5	9	5	41	47		48	41	39	5	7	15	25	34	1	3	4	5	7
EL	1	0	1	1	2 u	25	27		28	31	26	5	9	11	20	31	1	3	4	4	8
ES	:	2	1	2	1	:	34		29	37	35	:	20	28	32	35	:	4	8	8	11
FR	:	:	: u	2	4	:	:		32	34	34	:	:	27	37	39	:	:	11	17	13
IT	:	0	1	2	1	18	19		19	25	26	17	18	21	26	28	7	8	11	13	14
CY	5	5	5	1	1 u	22	21		29	30	26	8	10	12	24	30	2	4	3	5	7
LV	4	4	2	2	1 u	33	36		29	28	13	13	18	27	36	39	3	5	9	18	32
LT	1	1	1	1	1 u	23	23		24	22	17	12	17	21	29	32	3	7	10	21	26
LU	1	1	1	3	u	38	37		30	39	32	30	32	43	42	49	8	9	12	11	15
HU	2	0	0	1	u	24	27		28	28	26	17	20	27	36	41	4	7	7	14	16
MT	2	1	2	2	u	33	:	u	28	32	23	11	14	20	33	40	2	: u	4	6	13
NL	2	2	2	1	2 u	56	50		43	51	33	27	32	39	40	43	5	9	11	7	20
AT	4	4	: u	: u	2 u	48	44		46	45	42	15	22	24	34	39	2	6	8	6	9
PL	2	2	3	3	3	24	27		30	37	37	12	16	18	27	29	3	5	5	9	9
PT	: u	: u	: u	: u	1 u	23	26		20	20	26	12	13	20	31	31	: u	: u	7	11	11
RO	:	2	0	0	1	:	16		19	29	24	:	6	9	17	18	:	2	2	1	7
SI	:	2	2	2	u	37	35		33	38	28	: u	20	26	31	36	: u	7	10	13	17
SK	1	1	1	3	u	46	41		44	35	31	14	18	23	46	45	2	5	6	9	12
FI	6	4	3	2	u	46	49		46	51	27	29	30	33	38	45	7	11	13	7	25
SE	7	6	5	3	u	59	53		50	38	26	14	29	27	41	48	2	9	9	16	24
UK	5	10	: u	: u	4	: u	46		47	40	37	: u	19	23	40	43	6	: u	: u	10	11

4.3 Effective labour market policy

Effective active labour market policies (ALMP) are meant to help people in coping with rapid change, in reducing unemployment spells and in easing transitions toward new jobs. It contains 4 indicators (Figure 29) which are homogeneous in terms of data and country coverage.

Indicators

Expenditure on Active Labour Market Policies per person wanting to work (cat. 2-7) (ALMP) (source: Eurostat, Labour Market Policy; lmp_ind_exp) measures government actions to help and support the unemployed and other disadvantaged groups in the transition from unemployment or inactivity to work. Data on the expenditure and participants for each intervention are collected annually by administrative sources of each member state. The database also collects extensive qualitative information for each intervention: how it works, its main target groups, etc. Data coverage is from 2000 to 2010 (few data points in 2011 and complete series from 2006). Notice that the definition given in the compendium contains also category 1.1: client service which is not directly available in ESTAT webpage.

*Expenditure on Active Labour Market Policies (ALMP) as percentage of GD*P (source: Eurostat, Labour Market Policy; lmp_ind_exp) is the previous indicator as a percentage of the gross domestic product. Data coverage is from 2000 to 2010 (few data points in 2011) with complete series available from 2006.

Activation (source: Eurostat, Labour Market Policy; lmp_ind_actsup) is the share of participants in regular activation measure (with respect to the number of persons wanting to work). Data is available from 2000 to 2010 (few data points in 2011) and complete series are from 2006.

Long term unemployment rate (source: LFS; une_ltu_a) is the rate of long term unemployment of the active population. Data coverage: 2000 to 2011.

Difference with the Joint Assessment Framework

The *Overall indicator* and all the *sub-indicators* of JAF (Policy area 3 *Active labour market policies*) are included in the EMCO-modified list (Figure 30).

Figure 29. List of indicators for Effective active labour market policies

Component 3: Effective active labour market policies (ALMP)			
Indicator list	**source**	**direction**	**time coverage (complete series)**
Expenditure on ALMP per person in labour reserve	Eurostat, Labour Market Policy	+	2005-2010
Expenditure on ALMP as % of GDP	Eurostat, Labour Market Policy	+	2005-2010
Activation	Eurostat, Labour Market Policy	+	2005-2010
Long term unemployment rate	LFS	-	2000-2011

Figure 30. Map of indicators with respect to different policy classifications

Component 3: Effective active labour market policies (ALMP)			
Indicator list	**EMCO**	**EMCO-modified**	**JAF**
Expenditure on ALMP per person in labour reserve	X	X	sub-indicator (PA3)
Expenditure on ALMP as % of GDP	X	X	sub-indicator (PA3)
Activation	X	X	sub-indicator (PA3)
Long term unemployment rate		X	main indicator (PA3)

Analysis

The bar charts below show the performance of some member states within the component *Effective labour market policies*. Bar charts for all countries are available in Annex 3. Values are standardized (z-scores) around the EU average (equal to zero) using the last available year for computations.

The situation of effective active labour market policies is heterogeneous among EU Members. BE, DK, DE, FR are above the EU average for all indicators, while SK, HU, LT, LV, IT, EE and BG are below the EU average for all indicators. *Activation* is the indicator in which the highest number of countries performs below the average. The (abnormally) high EU average is strongly influenced by the strongly negative performance of BE where, in 2010, the 95.5% of people wanting to work participated in regular activation measures,, while for example in FI and in DK the percentages were 26.7% 50.7% (estimated values)respectively.

The *Long term unemployment rate*, on the other extreme, is the indicator with the highest number of countries (overall 16) performing above the EU-average. This indicator reaches its best performance in CY, LU, NL, AT, FI, SE and UK. For CY and UK though the performance in the last 5 years has been above the EU average (Figure 31). PL and DE are the most effective in the trend of reducing long term unemployment while IE and ES combine high long term unemployment in 2011 with an increasing trend in 2006-2011.

Chart 3. Bar charts of component 3: *Effective labour market policies*. Selected countries

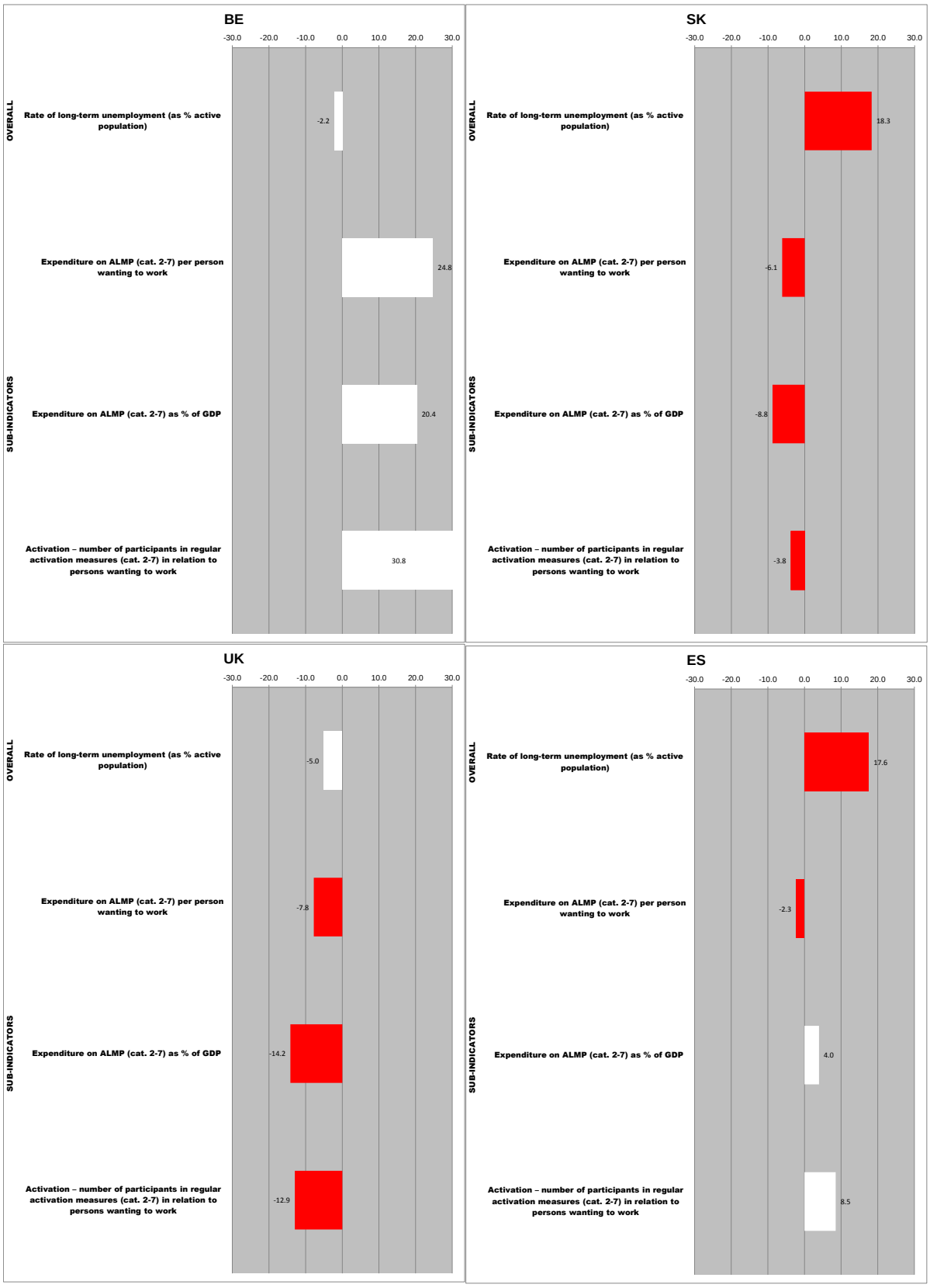
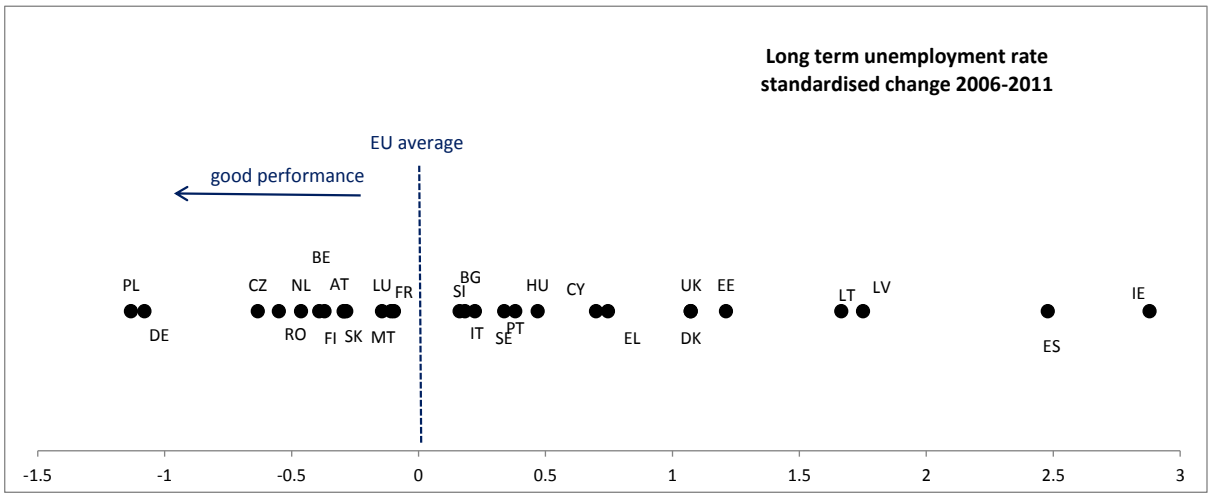


Figure 31. Long term Unemployment: standardized (compound) changes between 2006-2011



The correlation matrix of this component well reflects our *ex-ante* expectations about indicators: highly significant correlations among indicators and with the expected signs: positive for the first three indicators and negative for long term unemployment, overall indicator of this dimension (see Table 8). Principal Component Analysis further confirms the expected relationship between the indicators of this component. The PCA shows a unique latent dimension that gathers together 3 out of 4 indicators with the *Long term unemployment rate* (*Unempl_long_term*) only partially aligned with the pattern of the other indicators. Good data coverage, high correlation patterns and the results of the PCA highlight the statistical homogeneity of this dimension. The EMCO-IG did not raise particular concerns and endorsed the list of indicators indicated below.

Table 8. Pearson Correlation of the indicator in component 3. Effective active labour market policies (data for the last available year, in red correlations significant at the 5% level)

	EXP_ALMP	EXP_ALMP_%GDP	ACTIV	LTUR
EXP_ALMP	1.00	**0.85**	**0.89**	**-0.49**
EXP_ALMP_%GDP	**0.85**	1.00	**0.78**	-0.24
ACTIV	**0.89**	**0.78**	1.00	-0.25
LTUR	**-0.49**	-0.24	-0.25	1.00

Table 9. Principal Component Analysis on the indicators of Effective active labour market policies

Eigenvalues of correlation matrix			Factor coordinates of the variables, based on correlations				
Eigenvalue	% Total variance	Cumulative variance		Factor 1	Factor 2	Factor 3	Factor 4
2.86	71.44	**71.44**	Exp_ALMP	**-0.981**	0.011	-0.038	0.192
0.87	21.63	93.07	Exp_ALMP_%GDP	**-0.899**	-0.253	0.349	-0.072
0.22	5.53	98.60	Activation	**-0.914**	-0.236	-0.312	-0.106
0.06	1.40	100.00	Unemp_long term	0.501	**-0.863**	-0.017	0.052

JAF Reclassification: Effective labour market policy

Objective: *Effective active labour market policies (ALMP)* are meant to help people in coping with rapid change, to reduce unemployment spells and to ease transitions toward new jobs. It contains 4 indicators which are homogeneous in terms of data and country coverage.

Indicators

Overall Indicator

1. *Long term unemployment rate*

Sub-Indicators

2. *Expenditure on Active Labour Market Policies per person wanting to work (cat. 2-7)*
3. *Expenditure on Active Labour Market Policies (ALMP) as percentage of GDP*
4. *Activation*

4.4 Modern social security systems

The dimension of *modern social security systems* aims at providing an adequate income support, encouraging employment and facilitating labour market mobility. It accounts for a broad consideration of social protection provisions (unemployment benefits, pensions and healthcare meant to help people in reconciling their job and private life).

This dimension is further divided into two sub-components: a. *Social security systems* and b. *Reconciliation of work and private life*. We analyse the two subcomponents separately and Figure 32 contains the indicators from each of them.

Figure 32. List of indicators for Modern social security systems

Component 4: Modern social security systems			
Indicator list	**source**	**direction**	**time coverage (complete series)**
sub-dimension social security systems			
PLMP expenditure on supports per person in labour reserve	Eurostat, Labour Market Policy and EU Labour Force Survey	+	2000-2010
Expenditure on PLMP as % of GDP	Eurostat, Labour Market Policy	+	2000-2010
Unemployment trap	OECD and European Commission, Benefits	-	2001-2010
Low wage trap	OECD and European Commission, Benefits and wages	-	2001-2010
Net replacement rate after 6 months	OECD and European Commission, Benefits	+	2005-2010
Net replacement rate after 5 years	OECD and European Commission, Benefits and wages	-	2005-2010
Support	Eurostat, LFS	+	2006-2010
At-risk of poverty of unemployed	EU SILC	-	2005-2011
sub-dimension reconciliation of work and private life			
Child care	EU SILC	+	2005-2010
Inactivity trap	OECD	-	2004, 2008
Employment impact of parenthood	LFS	-	2002-2011
Part-time work break	LFS	+	2001-2010
Participation rate break		+	no data
Lack of care for children and other dependents	LFS	-	2006-2010
Transitions by work-life/balance combinations		+	no data and no definition

Figure 33. Map of indicators with respect to different policy classifications

Component 4: Modern social security systems			
Indicator list	**EMCO**	**EMCO-modified**	**JAF**
sub-dimension social security systems			
PLMP expenditure on supports per person in labour reserve	X	X	sub-indicator (PA4.1)
Expenditure on PLMP as % of GDP	X	X	sub-indicator (PA4.1)
Unemployment trap	X	X	sub-indicator (PA4.1)
Low wage trap	X	X	sub-indicator (PA4.1)
Net replacement rate after 6 months		X	sub-indicator (PA4.1)
Net replacement rate after 5 years		X	sub-indicator (PA4.1)
Support	X	X	
At-risk of poverty of unemployed	X	X	main indicator (PA4.1)
sub-dimension reconciliation of work and private life			
Child care	X	X	sub-indicator (PA5)
Inactivity trap	X	X	sub-indicator (PA5)
Employment impact of parenthood	X		sub-indicator (PA5)
Part-time work break		X	main indicator (PA5)
Participation rate break		X	sub-indicator (PA5)
Lack of care for children and other dependents	X	X	sub-indicator (PA5)
Transitions by work-life/balance combinations		X	
Inactivity and part-time work - male			sub-indicator (PA5)
Inactivity and part-time work - female			sub-indicator (PA5)
Employment impact of parenthood			sub-indicator (PA5)
Drop in replacement rates due to career interruption			sub-indicator (PA5)

4.4.1 Social security systems

Indicators

Expenditures in labour market policies (LMP) (source: LFS; lmp_ind_exp) measures the expenditure on out-of-work income maintenance and support (cat. 8) per person wanting to work. Data is available from 2000 to 2010 (few data points in 2011) with complete data series from 2006 to 2009.

Expenditures in labour market policies (LMP) - *as percentage of GDP* (source: LFS; lmp_ind_exp), namely the previous indicator expressed as a percentage of the GDP.

Unemployment trap (source: OECD and European Commission, Benefits and wages; earn_nt_unemtrp) measures the incidence of tax rate on low wage earners expressed as a percentage of gross income. Data is available from 2001 to 2010.

Low wage trap (source: OECD and European Commission, Benefits and wages; earn_nt_lowwtrp) measures the incidence of tax rate on low wage earners expressed as a percentage change in gross earnings[24]. Data is available from 2001 to 2010.

Net replacement rate after 6 months (source: OECD and European Commission, Benefits and wages; PA4.1-S5) measures the unemployment benefits with respect to the wage previously earned (net of taxes, 7th month of unemployment, single person, 67% of average wage). Data exists from 2001 to 2010 (complete data start from 2005).

Net replacement rate after 5 years (source: OECD and European Commission, Benefits and wages; PA4.1-S6) measures the unemployment benefits with respect to the wage previously earned (net of taxes, after 5 years of unemployment, single person, 67% of average wage). Data exists from 2001 to 2010 (complete data start from 2005).

Support (source: LFS; lmp_ind_actsup) measures activation and support policies (LMP participants per 100 persons wanting to work). We consider the total LMP supports for categories 8-9 (Out-of-work income maintenance and support - Early retirement). Data exists from 2000 to 2010 (few data points in 2011, complete data starts from 2006).

At-risk-of-poverty rate of unemployed aged 18+ (source: Eurostat, EU Statistics on Income and Living Conditions; ilc_li04). This indicator refers to the population of unemployed (with the cut-off point at 60% of median equalized income after social transfers). Data is available from 2003 to 2011 (complete data start from 2005).

Difference with the Joint Assessment Framework

The *Overall indicator* and all *sub-indicators* are included in the EMCO-modified list (Figure 33). The indicator on *Support* (LMP participants per 100persons wanting to work) is not in JAF (Policy Area 1.4 *Adequate social security systems*).

Analysis

The charts below give an immediate flavour about the performance of some member states on *social security systems*. Bar charts depict the z-scores calculated around the EU average using the last available year Charts for all EU countries are in Annex 4

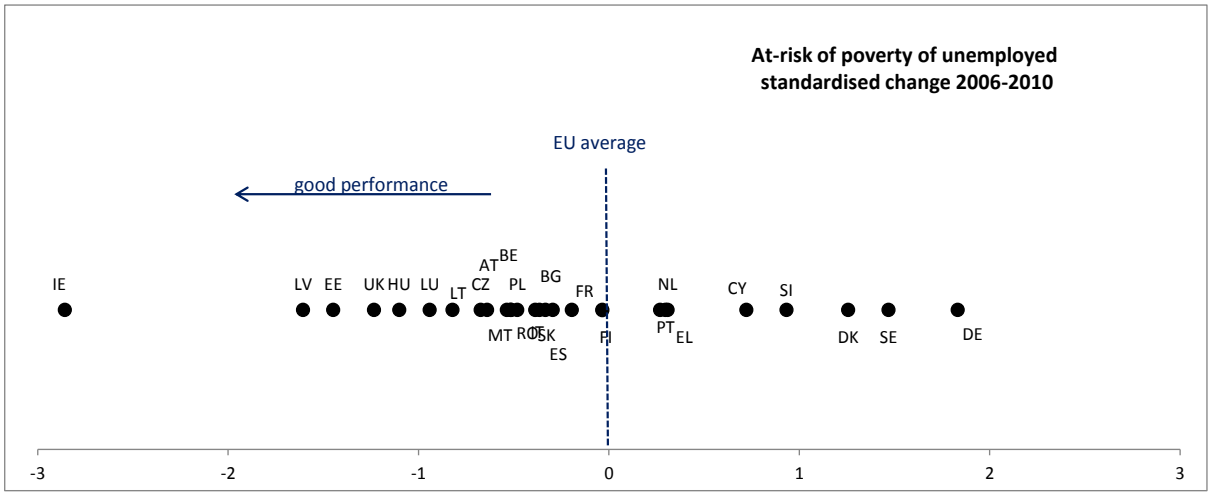
Looking at performance during the last available year of the dataset (mostly 2010), no country demonstrates positive performance in all indicators, but some peculiarities are nevertheless

[24] The "Low Wage Trap" provides information on the financial consequences for an employed person when increasing his/her work effort and thus his/her wages. While the "Unemployment Trap" measures the financial incentives to move from unemployment to employment, the "Low Wage Trap" relates to the changes in work effort, either as an increased number of hours worked or due to changes in skills (i.e. increased wages). It compares a person's financial situation while employed, both in the initial and changed situation, focusing on the net gain from the increased work effort. In particular, the Low Wage Trap, measured as a marginal effective tax rate, shows which part of such a financial gain is 'taxed away' by the combined effects of higher taxes and reduced or lost benefits.

observed. For example, ES has good performances on every indicator except *Unemployment trap*, while the opposite is true for UK which demonstrates uniformly negative performances for all indicators except for *Unemployment trap*.

In 2010, the *At-risk-of-poverty rate of unemployed* in Europe was 45%. DE stands out as the country with the highest value (70.3%) for this indicator and the highest growth rate (12.9%) between 2006 and 2010 (see data Tables attached). The German growth rate is higher than the EU average which was 2.3% for the same period (2006 – 2010) (Figure 34). The compound growth rate for DK and SE within 2006-2010/11 has been 9.6% and of 10.8% respectively in spite of a relatively low level of *At-risk-of-poverty rate of unemployed* (respectively 36.3 and 38.4)[25]. Ireland leads the group of countries where the level of *At-risk-of-poverty rate of unemployed* has decreased in the period 2006-2010 (-14.2%), reaching 26.8%.

Figure 34. Modern social security systems (social security systems): standardized (compound) changes between 2006-2011



The correlation structure of the dataset on modern social security (Table 10) shows high and significant correlations between the majority of indicators. The indicator *At risk of poverty rate of unemployed (ARPR_U)*, overall indicator is negatively and significantly correlated with *LMP expenditures on support* (*PLMP*, both per person and as % of GDP), *Net replacement rate after 6 months* (*NRR6m*) and with *Activation-support* (*SUPP*) as expected. This indicator should be positively related to *Unemployment trap (Unempl_trap)*, *Low wage trap* (*Low_wage_trap*) and to *Net replacement rate after 5 years* (*NRR5y)*: our data displays a negative sign but values of correlation cannot be considered statistically different from zero, thus the sign of the correlation is not relevant.

Principal Component Analysis (Table 11) shows one main and one residual latent dimensions behind the dataset. The first, counting more than half of the dataset variance, groups together almost all the indicators of this sub-component. *Unemployment trap* and *At risk of poverty of unemployed* seem to have additional explanation power beside the first latent dimension. Good correlation pattern and PCA results do not raise statistical concerns with respect to this component of flexicurity.

[25] The value for DK is on 2010, while the value for SE is in 2011.

Chart 4. Bar charts of component 4.a: *Social security systems*. Selected countries

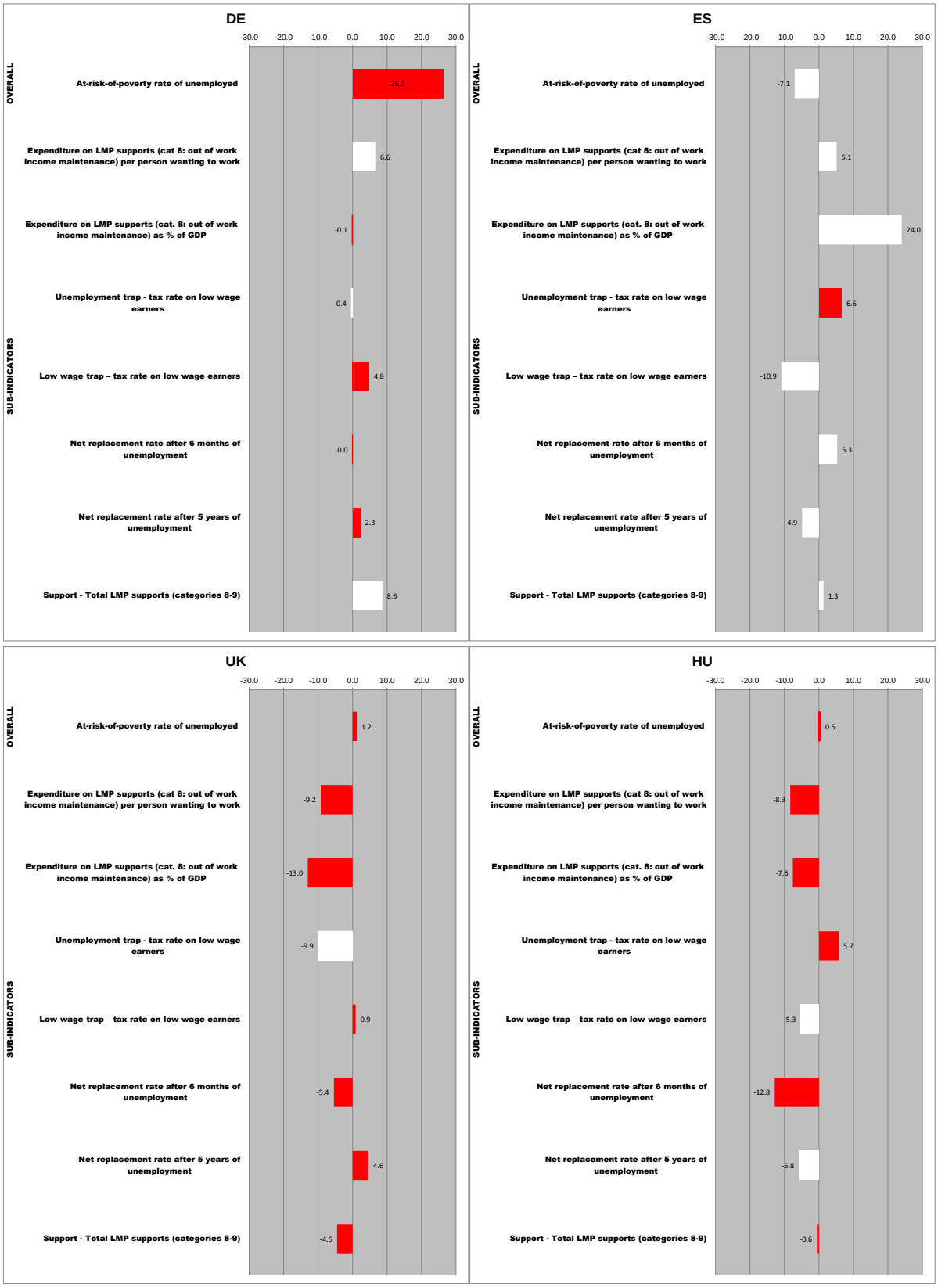


Table 10. Pearson Correlation of the indicator in component 4. Modern social security systems: social security systems (data for the last available year, in red correlations significant at the 5% level)

	PLMP	PLMP_%GDP	Unemp_trap	Low_wage_trap	NRR6m	NRR5y	SUPP	ARPR_U
PLMP	**1.00**	**0.73**	**0.40**	**0.63**	**0.61**	**0.57**	**0.80**	**-0.48**
PLMP_%GDP	**0.73**	**1.00**	0.33	0.32	**0.42**	0.24	**0.65**	**-0.42**
Unemp_trap	**0.40**	0.33	**1.00**	**0.52**	**0.60**	0.28	0.35	-0.12
Low_wage_trap	**0.63**	0.32	**0.52**	**1.00**	**0.48**	**0.60**	**0.53**	-0.21
NRR6m	**0.61**	**0.42**	**0.60**	**0.48**	**1.00**	0.31	**0.52**	**-0.43**
NRR5y	**0.57**	0.24	0.28	**0.60**	0.31	**1.00**	**0.54**	-0.32
SUPP	**0.80**	**0.65**	0.35	**0.53**	**0.52**	**0.54**	**1.00**	**-0.48**
ARPR_U	**-0.48**	**-0.42**	-0.12	-0.21	**-0.43**	-0.32	**-0.48**	**1.00**

Table 11. Principal Component Analysis on the indicators of Modern social security systems: social security systems

Eigenvalues of correlation matrix, and related statistics Active variables only			Factor coordinates of the variables, based on correlations				
Eigenvalue	% Total variance	Cumulative variance		Factor 1	Factor 2	Factor 3	Factor 4
4.30	53.79	53.79	PLMP	**-0.915**	0.142	0.057	-0.183
1.09	13.61	**67.39**	PLMP_%GDP	**-0.717**	0.381	-0.267	-0.428
0.89	11.18	78.57	Unemp_trap	**-0.598**	**-0.581**	-0.411	0.038
0.67	8.39	86.96	Low_wage_trap	**-0.739**	-0.438	0.269	-0.045
0.36	4.46	91.43	Net Repl. Rate 6m	**-0.744**	-0.168	-0.404	0.308
0.32	4.01	95.44	Net Repl. Rate 5y	**-0.659**	-0.158	0.636	0.131
0.24	3.06	98.49	Support	**-0.853**	0.214	0.100	-0.177
0.12	1.51	100.00	Risk of poverty_unempl	**0.577**	**-0.544**	0.031	-0.555

JAF Reclassification: Social security systems

Indicators

Overall Indicator

1. *At-risk-of-poverty rate of unemployed aged 18+*

Sub-indicators

2. *Expenditures in labour market policies (LMP)*
3. *Expenditures in labour market policies (LMP) - as percentage of GDP*
4. *Unemployment trap*
5. *Low wage trap*
6. *Net replacement rate after 6 months*
7. *Net replacement rate after 5 years*
8. *Support*

4.4.2 Reconciliation of work and private life

Indicators

Child care (source: EU SILC; ilc_caindformal) measures the children cared for (by formal arrangements other than by the family) less than 30h a usual week as a proportion of all children in the same age group (age 3 to mandatory school age). Data exists from 2005 to 2010.

Inactivity trap after child care costs (source: OECD). Total increase in effective tax burden after childcare costs is taken into account. Joint Commission -OECD project using tax-benefit Models. Data is available for 2004 and 2008.

Employment impact of parenthood (source: LFS; PA5-S4) measures the difference in percentage points between employment rates - age group 20-49 - without the presence of any children and with the presence of a child aged 0-6. Data is available from 2000 to 2011 (data with many missing points) Indicator not included in EMCO-modified list.

Part time work break: *Inactivity and part-time work due to personal and family responsibilities* (source: LFS; PA5-O1). Data is available from 2001 to 2010 (complete data isavailable from 2006).

Participation break. No definition (no data).

Lack of care for children and other dependents (source: LFS; PA5-S2) measures the inactivity and part-time work due to lack of care services for children and other dependents (percentage of persons 15-64 with care responsibilities). Data is available from 2006 to 2010.

Transition by work-life/balance combinations. No definition (no data).

Difference with the Joint Assessment Framework

The *Overall indicator* and some *sub-indicators* of JAF (Policy area 5 *Work-life balance*) are included in the EMCO-modified list (Figure 33). The indicators: *Inactivity and part-time work due to personal and family responsibilities* male/female, *Employment impact of parenthood*, *Drop in theoretical replacement rates due to career interruptions* are in JAF (PA 5) as sub-indicators but not in the EMCO-modified list.

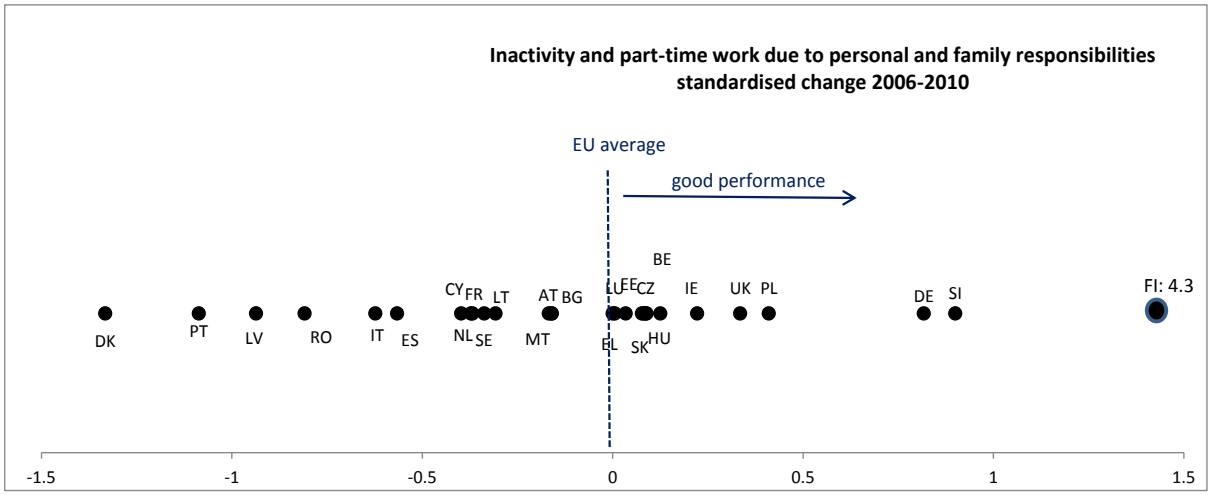
Analysis

Bar charts below show the performance (z-scores calculated with last available year) of some member states on *Reconciliation of work and private life*. Charts for all EU countries are Annex 5. The inspection of indicators' behaviour in 2010 (last available year for all indicators but *Employment impact of parenthood*, also available in 2011) shows a positive performance for all indicators in Luxembourg and the Netherlands, while no country has a negative performance everywhere. The most problematic indicator (where most of the countries perform below average) is *Inactivity and part-time work due to personal and family responsibilities* where only 7 countries perform above EU average (CZ, DE, IT, LU,NL, AT, UK). Notice that DK not only is below the EU average in 2010 but its growth rate 2006-2010 is on average the lowest in Europe (Figure 35). Below average performance

in 2010 and during 2006-2010 is also observed for SE, PT, LV, RO, ES, while SI and especially FI combine below average performance in 2010 with an above average growth rate in 2006-2010. Germany is the only country where both 2010 performance and growth rate are above average.

Among the other indicators of this component the *Lack of care for children and other dependents* is the one showing the highest number (17) of above average performance.

Figure 35. Modern social security systems (reconciliation of work and private life): standardized (compound) changes between 2006-2010

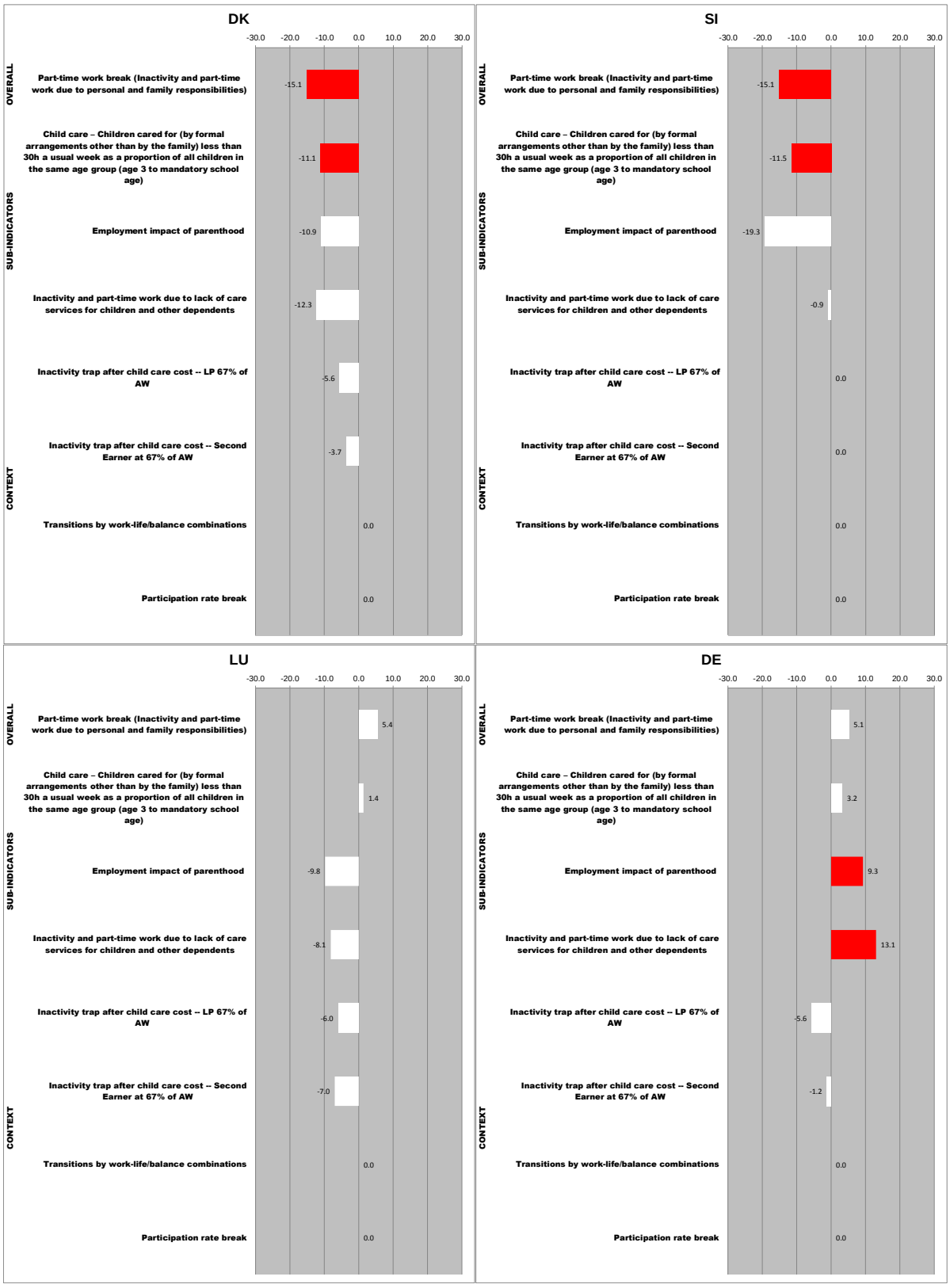


The correlation of indicators from *Reconciliation of work and private life* shows that they are poorly correlated among them with the exception of *Childcare (Child_C)* and *Inactivity and part-time work due to personal and family responsibilities (Inact_family)* where the correlation is significant and with the expected sign. This latter variable (overall indicator in this component) should also be negatively correlated with *Lack of care for children and other dependents (Lack_care)* and with *Employment impact of parenthood (EMPL_imp_par)* (indicators present in the EMCO list but not in the EMCO modified list of indicators). While in the first case the sign is the correct one in the second it is not, however those figures are not significant at 5% level (Table 12).

Principal Component Analysis shows a mixed situation with two latent dimensions (the third however represents 21% of overall variance[26]), the first one grouping three indicators and the second mainly loading *Lack of care for children and other dependents* which has an autonomous explanatory power. The picture is partially improved adding the indicators on inactivity trap after childcare costs (with 1 or 2 working parents). The relevant factors are again 3 but the overall indicator of this dimension is now clearly loaded together with most of the other indicators (Table 13).

[26] An eigenvalue higher that 1 (one of the criterion to choose the number of latent factors to retain) indicates that the related factor brings more information than the single variables composing it. In this case in spite of the fact that the eigenvalue is below 1 the percentage of variance accounted for by this factor is high (21%) pointing to a differentiated behaviour of the indicator on *employment impact of parenthood* principally loaded by this factor.

Chart 5. Bar charts of component 4.b: *Reconciliation of work and private life*. Selected countries



Note: data on *Transition by work-life balance* and *Participation rate break* are not availe at the time of the analysis

The indicator *Employment impact of parenthood* (below) is excluded from the EMCO-modified list but included in the JAF PA5. We recommend the inclusion (endorsed by EMCO) of this indicator in the list of sub-indicators on the following grounds: (i) higher coherence with the JAF; (ii) good data coverage and acceptable statistical behaviour with respect to the main indicator.

Accepting the suggestion, EMCO has also added the indicator on Inactivity trap after child care cost on the list of indicators to be investigated since its data is available only for 2004 and 2008 and no clear update is foreseen. Moreover, 2 countries (RO, BG) are systematically missing. The same status (wish-list) has been given to the indicator on Transition by work-life/balance combinations. Although it's included in the EMCO-modified list of indicators (2010) this indicator has no clear/established development methodology.

Table 12. Pearson Correlation of the indicator in component 4. Modern social security systems: reconciliation of work with private life (data for the last available year, in red correlations significant at the 5% level)

	Child_C	EMPL_imp_par	inact_family	Lack_care
Child_C	1.00	0.09	**0.55**	0.10
EMPL_imp_par	0.09	1.00	0.37	-0.11
inact_family	**0.55**	0.37	1.00	-0.35
Lack_care	0.10	-0.11	-0.35	1.00

Table 13. Principal Component Analysis on the indicators of Modern social security systems: reconciliation of work with private life

Eigenvalues of correlation matrix, and related statistics Active variables only			Factor coordinates of the variables, based on correlations			
Eigenvalue	% Total variance	Cumulative variance		Factor 1	Factor 2	Factor 3
1.78	44.45	44.45	Child_C	**-0.662**	**0.655**	0.228
1.11	27.66	**72.11**	EMPL_imp_par	**-0.570**	-0.223	**-0.782**
0.85	21.27	**93.38**	Inact_family	**-0.921**	0.018	0.138
0.26	6.62	100.00	Lack_care	0.408	**0.792**	-0.411

Eigenvalues of correlation matrix			Factor coordinates of the variables, based on correlations			
Eigenvalue	% Total variance	Cumulative variance		Factor 1	Factor 2	Factor 3
1.95	32.48	32.48	Child_C	**0.759**	0.270	0.410
1.11	18.54	51.02	EMPL_imp_par	**0.540**	0.234	-0.362
1.00	16.72	**67.74**	inact_family	**0.859**	0.151	-0.194
0.87	14.56	82.30	Lack_care	-0.360	**0.540**	0.587
0.83	13.78	96.08	Inac_trap_1 parent	0.439	-0.365	**0.544**
0.24	3.92	100.00	Inac_trap_2 parents	0.145	**-0.733**	0.157

JAF Reclassification: Reconciliation of work and private life

Indicators

Overall Indicator

1. *Inactivity and part-time work due to personal and family responsibilities*

Sub-indicators

2. *Lack of care for children and other dependents*
3. *Child care*
4. *Employment impact of parenthood*

5. Update of the joint EMPL-JRC project Flexicurity 1

At the end of 2010 the monitoring of the four Flexicurity components at the EU level was the object of two lists of indicators: The so-called *EMCO lis*t (developed in 2007) and a revision of it dated 2010 and known as *EMCO-modified list*. Additionally, in 2010, the joint EMPL-JRC project Flexicurity 1 (AA N° 30566-2007-03 A1CO ISP BE) produced from a set of indicators, only partially coinciding with the two EMCO lists, five composite indicators: one for each of the four flexicurity dimensions and an overall composite (Manca et al., 2010).

As three partially overlapping lists of indicators (the EMCO list, the EMCO-modified list and the list of indicators used for the EMPL-JRC project) were available, in agreement with DG EMPL, we used EMCO-modified list as the point of departure of the analysis and evaluated the additional indicators of the EMCO list and of the joint EMPL-JRC project.

This section contains the comparison between the EMCO-modified list and the set of indicators used in the joint EMPL-JRC project Flexicurity 1. The comparison between the EMCO and the EMCO-modified list is contained in Section 4.

Table 14 presents the set of indicators of the joint EMPL-JRC project Flexicurity 1. Both the table and the corresponding data are contained in the file Excel: Update_EMPL-JRC project. Data is updated at the last available year (for most of the variables 2011).

As already mentioned, the list indicators of the joint EMPL-JRC project only partially coincides with the EMCO-modified list. In some cases the EMPL-JRC list contains different indicators (as in the case of *Total employees in fixed-term only contracts as % of persons in employment* or *Share of employees in part-time*), in some other cases the EMPL-JRC list contains breakdown (by gender or by activity) of an indicator contained in the EMCO-modified list. This is the case for:

- Employment Protection Legislation: the EMCO-modified list includes *Ratio of EPL on temporary vs. regular contracts*, while the EMPL-JRC list contains two additional variables (part of this composite indicator calculated by the OECD).

- Overtime work: included in the EMCO-modified list as total overtime work, the available data comes from a special LFS module of 2004. LFS data available in ESTAT database only supplies the breakdowns by type of overtime work (Saturdays, Sundays nights, etc.) but not the total. The total cannot be inferred as sum of overtime work categories since double counting could be present (for workers working both at night, during Sundays or Saturdays). The EMPL-JRC lists both as total and with the different breakdowns by type of overtime work (i.e. work on Saturdays, Sundays, nights, etc.).

- Participation in CVT and Lifelong Learning : included in the EMCO-modified as total, and included in the EMPL-JRC only by gender breakdown.

- Labour Market Expenditures Expenditure as percentage of GDP and Labour Market Spending per participant in millions euros: included in the EMCO-modified as total expenditures but

included in the EMPL-JRC list only with the breakdown by type of expenditures (training, job sharing, job creation, etc.).

- Unemployment trap: included in the EMCO-modified as an overall indictor whereas the EMPL-JRC list distinguishes it according to the type of household (single earner, couple with or without children, etc.).

- Inactivity trap: the EMCO-modified list contains an overall indicator of *Low wage trap*, whereas the EMPL-JRC contains three indicators of inactivity trap depending on the household considered (single parent, one earner+2 children, and 2 earners+2 children). The main difference between the two indicators is that the *Inactivity trap* is calculated for the households at 67% of the Average Wage, while *Low-wage gap* is calculated for single persons without children, 33% of AW. Data coverage is also a problem with the EMPL-JRC list, where only three years (2005, 2006, and 2007) are available.

- Net replacement rate: the EMCO-modified list contains the net replacement rate after 6 months and 5 years for single persons, 67% of average wage. The EMPL-JRC list contains more breakdowns but data is available only for 2005, 2006, and 2007.

- Childcare services: the EMCO-modified list contains an indicator of childcare services (1-29 hours) for families with children aged 3 years to compulsory school age. The EMPL-JRC list contains more breakdowns both in terms of the age of the children and of the number of hours dedicated to childcare.

Additional difference between the two lists of indicators is the breakdown in sub-dimensions, almost absent in the EMCO-modified list (with the exception of the dimension Modern social security, divided into *Social security systems* and *Reconciliation of work and private life*). Moreover a sub-section of the EMPL-JRC dimension *Flexible and reliable contractual arrangements* (i.e. *Flexibility of work organization to help combine work and family responsibility*) is moved to the dimension of *Modern social security system* in the EMCO-modified list.

Table 14. List of indicators for each of the four components of flexicurity used in the joint EMPL-JRC project Flexicurity 1 (see file Excel: Update_EMPL-JRC project).

Flexible and reliable contractual arrangements						
Indicators and dimensions	***Label***	***Source***	***Last available year***	***EMPL-JRC project***	***EMCO-modified***	***notes***
Regulations on dismissals and use of flexible contractual forms (external flexibility)						
Total employees in fixed-term only contracts as % of persons in employment	lfsa_etpga	LFS	2011	x		
Share of employees with fixed-term contracts because they could not find a permanent job	lfsa_etgar	LFS	2011	x	x	
Share of self-employment in total employment	lfsa_esgaed/lfsa_egaed	LFS	2011	x		
Strictness of rules on regular contract	**EPR**	OECD 'EPL	2008	x		data from the EMPL-JRC project
Ratio of strictness of rule on temporary contracts vs regular ones'	**EPT/EPR**	OECD 'EPL	2008	x	x	
Strictness of rules on collective dismissals	EPC	OECD 'EPL	2008	x		data from the EMPL-JRC project
Flexibility of working time -internal flexibility						
Share of employees in part-time	lfsa_eppga	LFS	2011	x		
Share of employees in part-time because they could not find full-time job	lfsa_eppgai	LFS	2011	x	x	
Overtime work : Share of employees for whom overtime is main reason for actual hours worked being different from usual hours worked	overtime work	ESTAT	2008	x		not available in ESTAT database, data from the EMPL-JRC project
Numbers of hours actually worked during the reference week	lfsa_ewhan2	LFS	2011	x		
Share of workers doing evening work	lfsa_ewpeve	LFS	2011	x		
Share of workers doing night work	lfsa_ewpnig	LFS	2011	x		
Share of workers doing Saturday work	lfsa_ewpsat	LFS	2011	x		
Share of workers doing Sunday work	lfsa_ewpsun	LFS	2011	x		
Share of workers doing shift work	lfsa_ewpshi	LFS	2011	x		
Variable working hours: share of employees for whom variable hours is the main reason for actual hours worked being different from usual hours worked	hourreas	LFS	2008	x		not available in ESTAT database, data from the EMPL-JRC project
Flexibility of work organization to help combine work and family responsibility						
Inactivity and part-time work due to lack of suitable care services for children and other dependants	lfsa_epgar and lfsa_igar	LFS	2011	x	x	data cannot be summed-up as they are in percentage (with respect to different overall populations)
Employment impact of parenthood		ESTAT	2011	x	x	
Share of workers who have left last job/business for looking after children, other personal or family responsibilities and education or training	leavreas	LFS	2008	x		not available in ESTAT database, data from the EMPL-JRC project. Estat: available as percentage of inactive population (lfsa_igar)

Comprehensive lifelong learning strategies						
Indicators and dimensions	***Label***	***Source***	***Last available year***	***EMPL-JRC project***	***EMCO-modified***	***notes***
Percentage of firms providing CVT						
Percentage of enterprises providing CVT courses	trng_cvts06	CVTS	2010	x		available 2005 and 2010
Participation in CVT						
Percentage of employees (all enterprises) participating in CVT courses - Male	trng_cvts42	CVTS	2010	x		available 2005 and 2010
Percentage of employees (all enterprises) participating in CVT courses - Female	trng_cvts42	CVTS	2010	x		available 2005 and 2010
Hours in CVT courses per employee (all enterprises)	trng_cvts72	CVTS	2010	x		available 2005 and 2010
Investment in CVT						
Cost of CVT courses as % of total labour cost (all enterprises)	trng_cvts54	CVTS	2010	x	x	available 2005 and 2010
Cost of CVT courses per employee (all enterprises) - Corrected Direct Cost	trng_cvts62	CVTS	2010	x		available 2005 and 2010
Cost of CVT courses per employee (all enterprises) - Labour Cost of Participants	trng_cvts62	CVTS	2010	x		available 2005 and 2010
Lifelong Learning						
Participation of the adult population aged 25-64 participating in education and training (over the four weeks prior to the survey); Male.	trng_lfse_01	ESTAT	2011	x		
Participation of the adult population aged 25-64 participating in education and training (over the four weeks prior to the survey); Female.	trng_lfse_01	ESTAT	2011	x		

Effective labour market policies						
Indicators and dimensions	***Label***	***Source***	***Last available year***	***EMPL-JRC project***	***EMCO-modified***	***notes***
Expenditure as percentage of GDP						
LMP expenditure by type of action: cat 1, Labour market services	lmp_ind_exp	ESTAT	2010	x		Present in EMCO-modified as total % expenditure cat. 2-7
LMP expenditure by type of action: cat. 2, Training	lmp_ind_exp	ESTAT	2010	x		
LMP expenditure: cat.3, Job sharing and job rotation	lmp_ind_exp	ESTAT	2010	x		
LMP expenditure: cat.4, Employment incentives	lmp_ind_exp	ESTAT	2010	x		
LMP expenditure: cat.5, Supported employment and rehabilitation	lmp_ind_exp	ESTAT	2010	x		
LMP expenditure: cat.6, Direct job creation	lmp_ind_exp	ESTAT	2010	x		
LMP expenditure: cat.7, Start-up incentives	lmp_ind_exp	ESTAT	2010	x		
Spending per participant in millions euros						
Spending per participant Training	lmp_expsumm	ESTAT	2010	x		Spending is available in ESTAT website either in million euro or in % of GDP
Spending per participant Job sharing and job rotation	lmp_expsumm	ESTAT	2010	x		
Spending per participant Employment incentives	lmp_expsumm	ESTAT	2010	x		
Spending per participant Supported employment and rehabilitation	lmp_expsumm	ESTAT	2010	x		
Spending per participant Direct job creation	lmp_expsumm	ESTAT	2010	x		
Spending per participant Start-up incentives	lmp_expsumm	ESTAT	2010	x		
Spending/participants per person wanting to work						
LMP services (cat 1): spending per person wanting to work	lmp_ind_exp	ESTAT	2010	x		
LMP measures (cat 2-7): spending per person wanting to work	lmp_ind_exp	ESTAT	2010	x	x	
Total regular activation: % of participants in LMP measures (cat. 2-7) over total number of persons wanting to work	lmp_ind_actsup	ESTAT	2010	x	x	

Modern social security systems						
Indicators and dimensions	***Label***	***Source***	***Last available year***	***EMPL-JRC project***	***EMCO-modified***	***notes***
Overall spending and coverage of unemployment benefits						
% of persons wanting to work receiving out-of-work income support	lmp_ind_actsup	ESTAT	2010	x	x	
Expenditure on out-of-work income maintenance (% of GDP)	lmp_ind_exp	ESTAT	2010	x	x	
Expenditure on out-of-work income maintenance per person wanting to work.	lmp_ind_exp	ESTAT	2010	x	x	
Financial incentives to take up a job						
Unemployment trap: Marginal effective tax rate for an unemployed person (67% AW, single person)	19m7_1	ESTAT	2007	x		data not found in ESTAT database therefore reported from the EMPL-JRC project. ESTAT database contains aggregated data for the unemployment trap (earn_nt_unemtrp) and low wage trap (eran_nt_lowwtrp) reported as well in the corresponding data section
Unemployment trap: Marginal effective tax rate for an unemployed person (67% AW, one-earner couple with 2 children)	19m7_2	ESTAT	2007	x		
Inactivity trap (low wage-earner): Marginal effective tax rate when moving from social assistance to work (67% AW, single person)	inactivity trap_1	ESTAT	2007	x		
inactivity trap (low wage-earner): Marginal effective tax rate when moving from social assistance to work (67% AW, one-earner couple with 2 children)	inactivity trap_2	ESTAT	2007	x		
inactivity trap (low wage-earner): Marginal effective tax rate when moving from social assistance to work (67% AW, two-earner couple with 2 children)	inactivity trap_3	ESTAT	2007	x		
Amount and duration of individual unemployment benefits						
Net replacement rate after 6 months - Single 67% AW	Net_replacement_rate_1	ESTAT	2007	x		data not found in ESTAT database therefore reported from the EMPL-JRC project. The corresponding data section also contains the EMCO indicators on net replacement rates (OECD and European Commission, Benefits and wages).
Net replacement rate after 12 months - Single 67% AW	Net_replacement_rate_2	ESTAT	2007	x		
Net replacement rate after 60 months - Single 67% AW	Net_replacement_rate_3	ESTAT	2007	x		
Net replacement rate after 6 months - 1 earner 2 children, 67% AW	Net_replacement_rate_4	ESTAT	2007	x		
Net replacement rate after 12 months - 1 earner 2 children, 67% AW	Net_replacement_rate_5	ESTAT	2007	x		
Net replacement rate after 60 months - 1 earner 2 children, 67% AW	Net_replacement_rate_6	ESTAT	2007	x		
Childcare services						
childcare 0-2 (1-29 hours)	ilc_caindformal	SILC	2010	x		
childcare 0-2 (30 hours or more)	ilc_caindformal	SILC	2010	x		
3 years to compulsory school age(1-29 hours)	ilc_caindformal	SILC	2010	x	x	
3 years to compulsory school age (30 hours or more)	ilc_caindformal	SILC	2010	x		
Compulsory school age - 12 years (1-29 hours)	ilc_caindformal	SILC	2010	x		
Compulsory school age - 12 years (30 hours or more)	ilc_caindformal	SILC	2010	x		

Pearson correlation and a principal component analysis (PCA) have been used to analyse whether the indicators of the EMPL-JRC set could be reconsidered for inclusion in the EMCO-modified list. All the same, only a subset of the indicators of the EMPL-JRC list has been considered. Besides those common to both lists, we disregarded the breakdown by gender or activity/household composition of indicators included as "total" (all employed, or all persons wanting to work) in the EMCO-modified list. As indicated in the EMCO report *Monitoring and Analysis of flexicurity policies* (Issue 2, July 2009), the "total" focuses on the target population of employment policies in general and allow an overall assessment and monitoring of flexicurity components.

In order to analyse possible segmentations of the labour market the EMCO group recommends including, besides totals, all meaningful breakdowns of a given indicator, making the inclusion analysis here redundant. We also disregarded all the indicators for which updates beyond 2008 are not available, given that this data has been already analysed for inclusion in the EMPL-JRC project. We disregard the data on overtime work by type of overtime work (Sundays, Saturdays, nights, etc.) given that a large portion of double counting could be present in the data (i.e. workers working at night but also on Sundays and Saturdays). Table 15 summarizes the list of EMPL-JRC indicators considered.

Notice however, that the inclusion/exclusion of indicators is primarily a theoretical and a political choice only influenced, but not determined, by statistical adequacy.

Table 15. List of EMPL-JRC indicators considered for the inclusion analysis

Flexible and reliable contractual arrangements						
Indicators and dimensions	***Label***	***Source***	***Last available year***	***EMPL-JRC project***	***EMCO-modified***	***notes***
Total employees in fixed-term only contracts as % of persons in employment	lfsa_etpga	LFS	2011	x		
Share of self-employment in total employment	lfsa(esgaed/egaed)	LFS	2011	x		
Share of employees in part-time	lfsa_eppga	LFS	2011	x		
Numbers of hours actually worked during the reference week	lfsa_ewhan2	LFS	2011	x		
Comprehensive lifelong learning strategies						
Indicators and dimensions	***Label***	***Source***	***Last available year***	***EMPL-JRC project***	***EMCO-modified***	***notes***
Percentage of enterprises providing CVT courses	trng_cvts06	CVTS	2010	x		
Hours in CVT courses per employee (all enterprises)	trng_cvts72	CVTS	2010	x		
Cost of CVT courses per employee (all enterprises) - Corrected Direct Cost	trng_cvts62dc	CVTS	2010	x		
Cost of CVT courses per employee (all enterprises) - Labour Cost of Participants	trng_cvts62lc	CVTS	2010	x		
Modern social security systems						
Indicators and dimensions	***Label***	***Source***	***Last available year***	***EMPL-JRC project***	***EMCO-modified***	***notes***
childcare 0-2 (1-29 hours)	ilc_child_0-2_low	SILC	2010	x		
childcare 0-2 (30 hours or more)	ilc_child_0-2_high	SILC	2010	x		
3 years to compulsory school age (30 hours or more)	ilc_child_3-12_high	SILC	2010	x		
Compulsory school age - 12 years (1-29 hours)	ilc_child_12more_low	SILC	2010	x		
Compulsory school age - 12 years (30 hours or more)	ilc_child_12more_high	SILC	2010	x		

Flexible and reliable contractual arrangements

Table 16. Pearson Correlation between the EMPL-JRC list and the EMCO list. Flexible and reliable contractual arrangements (Red marked correlations are significant at p < .05000)

correlation		EMCO modified list							
		EPL	DIV_pt	DIV_tw	Trans_con	Overtme_h	Tenure	Turnover	Temp_to_perm
EMPL-JRC list	lfsa_etpga	0.24	0.00	0.12	-0.03	0.28	0.49	0.11	-0.39
	lfsa(esgaed/egaed)	0.18	0.48	0.49	0.21	-0.29	0.57	-0.54	-0.16
	lfsa_eppga	0.07	-0.48	-0.54	0.34	0.65	0.24	0.08	-0.14
	lfsa_ewhan2	-0.01	0.43	0.50	-0.21	-0.65	-0.15	-0.22	0.12

Table 17. Principal Component analysis. Set of EMPL-JRC list and EMCO list. Flexible and reliable contractual arrangements

Eigenvalue	% Total	Cumulative		Factor 1	Factor 2	Factor 3
3.78	31.51	31.51	EPL	0.149	-0.398	**-0.565**
2.77	23.11	54.62	DIV_pt	**0.755**	-0.113	-0.228
1.88	15.65	**70.27**	DIV_tw	**0.772**	-0.243	-0.121
0.99	8.21	78.48	Trans_con	-0.361	-0.510	**0.582**
0.77	6.45	84.94	Overtme_h	**-0.827**	-0.071	0.084
0.55	4.62	89.55	Tenure	-0.151	**-0.895**	0.030
0.40	3.36	92.92	Turnover	-0.166	0.632	**-0.684**
0.35	2.90	95.81	Temp_to_perm	0.085	0.427	**0.518**
0.24	1.97	97.78	lfsa_etpga	-0.209	-0.527	**-0.560**
0.21	1.72	99.50	lfsa(esgaed/egaed)	0.462	**-0.747**	0.108
0.05	0.38	99.88	lfsa_eppga	**-0.869**	-0.209	-0.124
0.01	0.12	100.00	lfsa_ewhan2	**0.862**	0.088	0.233

The absence of significant correlation between the considered indicators in the EMPL-JRC list and the main indicator (*Transition by type of contract*) is the main message of Table 16 (a modest correlation of 0.34 is found between *Transition* and *Share of employees in part-time – lfsa_eppga*). Significant correlation however is present with the rest of sub-indicators. In particular the EMPL-JRC indicators considered seem to be related to *Diversity and reasons for contractual and working arrangements* (both *Involuntary part* time and Involuntary *temp work*), to *Overtime hours* and *Job tenure*. We encounter a negative correlation between the *Share of self-employed in tot. employment* (*lfsa(esgaed/egaed)*) and *total turnover* (probably high job tenure acts as an incentive for self-employment while a large turnover makes it less attractive), between *Share employees in part-time* (*lfsa_eppga*) and *share of involuntary part time or fixed term* (suggesting that where temporary work is incentivized the share of involuntary part of it is less frequently reported) and between the *number of hours actually worked* (*lfsa_ewhan2*) and the *number of overtime hours*. Interestingly the higher the share of part-time work, the higher also the share of overtime hours worked.

The *Share of employees in with fixed-term contracts* (*lfsa_etpga*) does not correlate with the *Share of involuntary part-time or temporary work*: the first indicator shows the share of total workers with a fixed term contract, while the second indicator shows how many of those with a fixed term contract are obliged to accept it because they cannot find another job. The information supplied by the two indicators is therefore complementary.

The PCA sees the *share of employees in part-time* and the *number of hours actually worked* loaded by the first factor together with *involuntary part-time* and *temporary-work* and with *overtime hours*, suggesting some degree of overlap with the indicators in the EMCO-modified list (Table 17). Besides the *Number of hours worked during the week* is a rough measure of productivity rather than a measure of flexible contractual arrangements.

The *share of employees in fixed term* is overall modestly related to the EMPL-modified set of indicators with the exception of *Job tenure* and is loaded both by the second and the third factor in the PCA. The share of self-employed is robustly loaded together with *Job tenure*. Overall the indicators *Share of employees in with fixed-term contracts* and *Share of self-employment* could bring additional information and might be worth considering for future revisions of the indicator list monitoring flexicurity.

Comprehensive Lifelong Learning

Table 18. Pearson Correlation between the EMPL-JRC list and the EMCO list. Lifelong Learning (Red marked correlations are significant at p < .05000)

	correlation	EMCO modified list										
		Spend%GDP	Invest	LLL	Particip	Tans_lab	Edu_att	eSkills_c_no	eSkills_c_low	eSkills_i_low	eSkills_c_m&h	eSkills_i_m&h
EMPL-JRC list	trng_cvts06	0.49	0.53	**0.69**	0.48	0.14	0.53	-0.10	-0.22	0.44	0.81	0.55
	trng_cvts72	0.11	0.64	**0.28**	0.60	0.35	0.05	-0.23	-0.04	0.25	0.28	0.05
	trng_cvts62dc	0.51	0.81	**0.53**	0.58	0.46	0.36	-0.17	-0.20	0.49	0.69	0.33
	trng_cvts62lc	0.35	0.63	**0.42**	0.55	0.45	0.34	-0.26	-0.22	0.39	0.55	0.21

Table 19. Principal Component analysis. Set of EMPL-JRC list and EMCO list. Lifelong Learning

Eigenvalue	% Total	Cumulative		Factor 1	Factor 2	Factor 3	Factor 4
6.179	41.193	41.193	Spend%GDP	**-0.597**	0.288	0.059	0.458
2.519	16.793	57.986	Invest	**-0.709**	-0.346	-0.030	0.433
1.426	9.507	67.493	LLL	**-0.736**	0.447	0.000	-0.052
1.026	6.837	**74.330**	Particip	**-0.633**	-0.379	0.324	0.090
0.970	6.467	80.797	Tans_lab	**-0.431**	**-0.475**	-0.253	-0.073
0.783	5.223	86.019	Edu_att	**-0.547**	0.451	0.130	0.048
0.666	4.438	90.457	eSkills_c_no	0.214	0.156	**0.859**	0.262
0.446	2.971	93.428	eSkills_c_low	0.320	**-0.555**	**0.571**	-0.113
0.357	2.380	95.808	eSkills_i_low	-0.371	**-0.536**	0.260	-0.522
0.251	1.670	97.478	eSkills_c_m&h	**-0.824**	0.340	-0.009	-0.387
0.177	1.180	98.658	eSkills_i_m&h	-0.521	**0.648**	0.184	-0.130
0.099	0.663	99.321	trng_cvts06	**-0.874**	0.136	0.188	-0.209
0.071	0.472	99.793	trng_cvts72	**-0.624**	-0.488	-0.129	0.210
0.028	0.186	99.979	trng_cvts62dc	**-0.908**	-0.203	0.030	0.023
0.003	0.021	100.000	trng_cvts62lc	**-0.825**	-0.302	-0.133	0.044

Significant correlation is found between almost all the indicators in the EMPL-JRC list considered and the main indicator of the EMCO-modified list (*Lifelong learning - percentage of adult population (25-64) participating in education and training* – LLL, Table 18). All indicators of the EMPL-JRC list are

loaded in the first factor of the PCA pointing to a common behaviour with most of the indicators in the EMCO-modified list (Table 19). Interestingly the *Percentage of enterprises providing CVT courses* (trng_cvts06) is highly correlated with *Medium and high computer skills*. The *Direct cost of CVT courses* (Cost of CVT courses per employee – trng_cvts62dc) is obviously highly related to *Firm Investment* (Cost of CVT courses as % of total labour cost, all enterprises), making it redundant together with its complementary indicator *Labour costs of CVT courses* (trng_cvts62lc) with respect to the indicator in the EMCO-modified list. *Hours in CVT courses* (trng_cvts72) is correlated to both *Investment* and *Share of employees participating to CVT courses*.

Overall, while *Direct cost* and *Labour costs of CVT courses* are overlapping with the indicator of *Firm Investment* in the EMCO modified list, the indicators on Hours *in CVT courses per employee* and *Percentage of enterprises offering CVT courses* could be worth monitoring as contextual indicators in the Comprehensive Lifelong Learning dimension of flexicurity.

Effective Labour Market Policies

For this dimension all relevant indicators considered in the EMPL-JRC list (divided according to the breakdown per type of LMP provided) are included in the EMCO-modified set as totals over all LMP policies. The only exception is *Spending per participant in millions euros* by breakdowns per type of LMP provided, absent in the EMCO-modified list which includes spending as percentage of GDP and per person willing to work.

Modern Social Security System

Table 20. Pearson Correlation between the EMPL-JRC list and the EMCO list. Modern social security (Red marked correlations are significant at p < .05000)

correlation		EMCO modified list											
		LMP_exp	LMP_exp%GDP	Unemp_trap	LowW_trap	nrr_6m	nrr_5y	LMP_supp	Pov_unemp	child_3-12_low	impact_parent	wbreak_pt	inac_pt_child
EMPL-JRC list	ilc_child_0-2_low	0.71	0.52	0.19	0.49	0.39	0.57	0.52	-0.45	0.77	-0.12	0.59	-0.13
	ilc_child_0-2_high	0.23	0.21	0.42	0.26	0.46	0.35	0.16	-0.34	-0.28	-0.48	-0.40	-0.24
	ilc_child_3-12_high	-0.29	-0.14	0.16	-0.24	-0.12	-0.10	-0.16	0.16	-0.79	-0.11	-0.39	-0.28
	ilc_child_12more_low	0.24	0.10	-0.28	0.05	-0.06	0.18	0.09	-0.03	0.34	-0.13	0.08	-0.02
	ilc_child_12more_high	-0.12	0.00	0.32	0.02	0.10	-0.07	-0.02	-0.09	-0.29	0.00	-0.04	-0.06

Table 21. Principal Component analysis. Set of EMPL-JRC list and EMCO list. Modern social security system

Eigenvalue	% Total	Cumulative		Factor 1	Factor 2	Factor 3	Factor 4	Factor 6
5.8	34.0	34.0	LMP_exp	**-0.948**	0.013	-0.027	-0.038	0.030
3.5	20.5	54.5	LMP_exp%GDP	**-0.711**	0.102	-0.174	0.190	0.292
1.9	11.1	65.6	Unemp_trap	-0.426	**0.573**	0.006	0.251	-0.470
1.5	8.7	74.3	LowW_trap	**-0.728**	0.107	0.209	-0.042	-0.442
1.0	6.1	**80.4**	nrr_6m	**-0.669**	0.405	-0.248	0.172	-0.098
0.8	5.0	85.4	nrr_5y	**-0.722**	0.079	0.210	-0.350	-0.261
0.7	4.0	89.4	LMP_supp	**-0.798**	0.085	-0.036	0.113	-0.009
0.6	3.3	92.6	Pov_unemp	**0.612**	-0.231	0.105	0.246	-0.513
0.4	2.1	94.7	child_3-12_low	**-0.715**	-0.561	0.015	0.270	0.156
0.3	1.8	96.5	impact_parent	0.205	-0.405	**0.676**	-0.026	-0.125
0.3	1.5	98.1	wbreak_pt	-0.386	-0.475	**0.648**	-0.029	-0.030
0.1	0.8	98.8	inac_pt_child	0.213	-0.184	-0.415	**0.755**	-0.190
0.1	0.4	99.3	ilc_child_0-2_low	**-0.817**	-0.216	0.178	0.099	0.162
0.1	0.3	99.6	ilc_child_0-2_high	-0.235	**0.822**	-0.170	-0.250	-0.025
0.0	0.2	99.8	ilc_child_3-12_high	0.393	**0.756**	0.118	-0.283	-0.003
0.0	0.1	100.0	ilc_child_12more_low	-0.215	**-0.630**	-0.545	-0.456	-0.175
0.0	0.0	100.0	ilc_child_12more_high	0.097	**0.689**	0.527	0.388	0.238

All indicators related to childcare of children above 12 in the EMPL-JRC list[27] correlate modestly (if at all) with the main indicator of the EMCO-modified list (*Inactivity and part-time work due to personal and family responsibilities*)[28], while the correlation is significant for childcare of younger children. *Childcare (1-29 h.) for children below 3 years old* (*ilc_child_0-2_low*) highly and positively correlates with *LMP expenditures and support*, *low wage trap* and surprisingly with *part-time work break*, and negatively correlates with *at-risk of poverty of unemployed* (Table 20). This indicator, in the PCA, is the only one loaded in the first factor together with the majority of the indicators of the EMCO-modified list pointing to a common latent factor. The rest of the indicators of child-care display significant correlation only in few cases and are loaded in the PCA loads by the second factor together with the indicator on unemployment trap (Table 21).

Overall only the indicators on childcare of children below 3 (*ilc_child_0-2_low, ilc_child_0-2_high*) seem strongly related to those of the EMCO-modified list and seem worth monitoring in this context. Given that in many countries "formal" education starts at the age of 3-4 with kindergartens, *ilc_child_0-2* is probably a measure of early childhood education and could be useful as proxy of help working mothers receive.

[27] The indicators on childcare are defined as the percentage of Children cared for, by formal arrangements other than by the family, less than 30 hours a usual week/30 hours or more a usual week as a proportion of all children of same age group. Breakdown by Children aged under 3 (0-2 years), Children aged between 3 years and admission age for compulsory school.

[28] All correlations are non-significant at both at the 5% and 10% level.

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