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Transitions in labour market status in the European Union

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Abstract

This paper presents information on labour market mobility in 23 EU countries, using Eurostat's Labour Force Survey (LFS) data over the period 1998-2008. More specifically, it discusses alternative measures of labour market churning; including the ease with which individuals can move between employment, unemployment and inactivity over time. The results suggest that the probability of remaining in the same labour market status between two consecutive periods is high for all countries. Nonetheless, transitions from unemployment and inactivity back into the labour market are relatively weak in the euro area and central eastern European EU (CEE EU) countries compared to Denmark and, particularly, Sweden. Moreover, comparisons of transition probabilities over time suggest that – until the onset of the financial crisis – the probability of remaining in unemployment over two consecutive periods decreased in Sweden, the euro area, and, to a lesser extent, Denmark, while it increased in the average CEE EU countries. At the same time, however, successful labour market entries (from outside the labour market) increased in the average CEE EU countries, Denmark and Sweden. On the basis of an index for labour markets turnover used in the paper (Shorrock, 1987), labour markets in Spain, Luxemburg, the Netherlands, Denmark and Sweden are the most mobile on average, with these results mainly reflecting higher mobility of people below the age of 29, highly educated and female workers. We also find that mobility of all worker groups has generally increased over time in the euro area, Denmark and Sweden. Finally, we ask whether some of the observed changes in mobility can be broadly restraint to some “macro” explanatory factors, including part time and temporary employment, unemployment and structure indicators. The results provide a mixed picture, suggesting that the sense of mobility strongly varies across countries.

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Keywords: Transition probabilities, labour market mobility, LFS micro data, EU countries

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1. Introduction

This paper utilises the available microeconomic data behind the Eurostat's Labour Force Survey (LFS) to present alternative measures of labour market mobility across EU countries over time, and in particular the ease of transition between the labour market statuses of unemployment, employment and out of the labour market (inactivity) over the period 1998-2008.¹ As well as identifying stylized facts, the aim of this paper is to shed some light on the functioning of the EU labour markets.

Until the onset of the crisis, the EU experienced a reduction in unemployment rate, essentially driven by a fall in long term unemployment and unemployment duration (Table 1).² A quick look at the standardized unemployment (employment) rates by country confirms that most EU countries were successful in reducing (improving) unemployment (employment) before the crisis. However, across the EU, unemployment (employment) rates behaved very differently, with some countries displaying steadily declining (increasing) unemployment (employment) rates over time, while others exhibiting more marked unemployment (employment) fluctuations; i.e. with unemployment (employment) increasing (decreasing) after the 2001–02 global recession and – in many central eastern European EU

¹ The anonymized version of this data (which is used in this analysis and is the only version for many countries currently available to the ECB) suffers from some limitations in its use for economic analysis since individuals cannot be tracked over time and there are significant changes in the information collected, variable definitions and coding which limit the time series dimension of the data.

² A decrease in the average unemployment duration from 18 months (1998) to 11 months (2008) can be overall observed in Europe (Table 1).

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(CEE EU) countries – raising (waning) following the 1998 Russia crisis, before declining again (improving) in the light of EU membership (see also Epstein and Macchiarelli, 2010; Macchiarelli, 2013a; b).

Alongside the macroeconomic picture of a decrease in unemployment rate and duration, the use of micro data can help assess if such developments at the EU level reflected an increase in the number of people transitioning from unemployment to employment, or, on the contrary, an increase in the transitions from unemployment to inactivity. Similarly, microeconomic data can help highlight whether the increase in the employment rate resulted from an increase in employment persistence (more people remaining in employment), an increase in transitions from unemployment to employment, or an increase in transitions from inactivity to employment. Finally, the use of microeconomic data also allows for the construction of measures of the degree of labour market flexibility, and how this varied across countries and over time. The analysis of transitions into and out of unemployment thus offers significant advantages over an analysis of macroeconomic developments, allowing us to observe the directions of flows and levels of status mobility behind any particular change in the aggregate employment, unemployment or inactivity rate. Moreover, the proposed methodology allows quantitatively assessing the role played by labour market flows, by readily analysing how mobility measures evolved over time and across worker groups (gender, age and education).

The contribution of the paper can be gauged under two perspectives. First, we provide results for a large set of countries, by providing a systematic, unconditional approach to estimate labour market transitions in most EU countries. Secondly, we exploit cross country differences in the size and the speed with which labour market changes took place over time.

In our analysis, a number of stylized facts are documented. First, we find that the probability of remaining in the same labour market status between two consecutive periods is high for all countries. Nonetheless, transitions from unemployment and inactivity back into the labour market are relatively weak in the euro area and central eastern European EU (CEE EU) countries compared to Denmark and, particularly, Sweden. Secondly, comparisons of transition probabilities over time suggest that – until the onset of the financial crisis – the probability of remaining in unemployment over two consecutive periods decreased in Sweden and in the euro area, while it increased in the average CEE EU countries. At the same time, however, successful labour market entries (from outside the labour market) increased in CEE EU countries, Denmark and Sweden.

Finally, on the basis of an index for labour markets turnover used in the paper (Shorrocks, 1987), labour markets in Spain, Luxemburg, the Netherlands, Denmark and Sweden are the most mobile on average, with these results mainly reflecting higher mobility of people below the age of 29, highly educated and female workers. We also find that mobility of all worker groups has generally increased over time in the euro area, Denmark and Sweden.

In the last section, we look at the link between macroeconomic developments and changes in mobility indexes. The results suggest that countries who experienced an increase in mobility are also those which increased their percentage of time limited (e.g., temporary) contracts and part time work, and *viceversa*. However, looking at unemployment rates and some structure indicators the results provide a mixed picture, suggesting that the sense of mobility and its implications strongly vary across countries.

The remainder of the paper is organized as follows. Section 2 presents the methodology and our main results. Section 3 looks at some explanatory

factors behind the observed labour market mobility in each country. Section 4 concludes.

2. Labour Market Transitions

2.1. Transitions in labour status in the EU

A number of papers have focused on establishing the persistence of both unemployment incidence and duration using longitudinal data with a relatively short time horizon (Boeri and Garibaldi, 2009; Petrongolo and Pissarides, 2008; Brandolini *et al.*, 2006 for Europe; Vanhala, 2009; Elsby *et al.*, 2009 for OECD countries).³ These papers document an increase in status mobility during the last two decades, with differences in the extent of mobility across countries being attributed to institutional factors. Boeri and Garibaldi (2009) ask, for instance, why the decrease in unemployment does not show up as increased satisfaction in the labour market, a result they attribute to the increased risk of job loss that higher mobility implies. Elsby *et al.* (2009) instead question the validity of the assumption of a steady state decomposition for unemployment which forms the basis of a number of theoretical models. Petrongolo and Pissarides (2008) identify the relative role of inflow and outflow rate from unemployment in explaining labour market dynamics and conclude that the relative contribution of each depends on labour market institutions. In the same vein, Vanhala (2009) argues that European countries generally have low unemployment inflow and outflows rates which contribute to high rates and unemployment persistence. Brandolini *et al.* (2006) emphasise the need to acknowledge the group of non-participants (or *potentially* unemployed) when looking at labour market

³ See, *inter alia*, Fujita and Ramey (2006); Shimer (2007) for the US.

dynamics; accordingly the distinction provided for by the ILO definition of unemployment is only “artificial” and indeed non-participants and unemployed do not differ substantially in their job search activity.

We use gross data flows from the Eurostat’s Labour Force Survey (LFS) microdata for 23 countries. The UK, Germany (DE), Malta (MT) and Ireland (IE) are excluded from the analysis owing to a lack of data.⁴ The remaining countries are grouped as follows:

- Euro area countries, including EMU members until 2008, i.e. Spain (ES), Italy (IT), France (FR), the Netherlands (NL), Belgium (BE), Austria (AT), Cyprus (CY), Finland (FI), Greece (GR), Luxemburg (LU), Portugal (PT), Slovenia (SI).
- Central Eastern EU non euro area countries (hereafter, CEE EU), including Czech Republic (CZ), Estonia (EE), Latvia (LV), Lithuania (LT), Hungary (HU), Poland (PL), Romania (RO) and Slovakia (SK).
- Denmark (DK) and Sweden (SE).

We use a relatively comprehensive sample which focuses on the period between 1998 and 2008. Stopping the sample in 2008 is motivated by the idea that EU labour markets sensitively lagged the slack in the real activity, showing a worsening of unemployment figures mainly starting from 2009. Hence, with the purpose of identifying stylized labour market facts, the crisis and ensuing labour adjustments are for now excluded.

⁴ Due to missing data, some countries are also excluded when computing aggregated results for the euro area or the CEE EU. Based on the LFS, data are not available for Germany on the overall sample, for Spain prior to 2006, for France for the 2003-2005 period, for Luxemburg and Slovenia prior to 1999 and 2000 respectively. For the Netherlands data availability reduces to 2008 for transitions from unemployment, and to 2006-2008 for transitions from employment and inactivity. For Latvia, Lithuania and Slovakia data are missing prior to 2001, for Romania and Hungary prior to 1999. For Sweden data are missing in 2005.

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Table 1: Unemployment and employment rates in the EU (1998-2008)

EU (changing composition)	Unemployment rate (%)	Long-term unemployment (12 months or >) as a % of the total unemployment	Employment rate (%)	Average unemployment duration in months
1998	10.3	48.0	61.2	18.3
1999	9.5	46.1	62.2	17.7
2000	8.5	45.4	63.2	17.4
2001	7.4	44.0	63.9	16.0
2002	7.7	40.1	64.2	15.6
2003	8.1	41.3	64.4	16.1
2004	8.3	41.0	64.6	15.7
2005	9.1	45.5	64.0	15.7
2006	8.3	45.3	64.8	15.7
2007	7.2	42.7	65.4	14.8
2008	7.1	37.0	65.9	12.4
EA (16 countries)				
1998
1999
2000	9.4	48.6	61.2	..
2001	8.3	47.3	62.0	..
2002	8.6	43.7	62.3	..
2003	9.0	45.0	62.6	..
2004	9.3	44.6	62.8	..
2005	9.1	45.3	63.7	..
2006	8.4	46.2	64.6	..
2007	7.6	44.3	65.6	..
2008	7.6	39.3	66.0	..

Sources: Eurostat and OECD statistics (last column).

Eurostat Labour Force Survey Statistics are available in yearly frequencies and are constructed from a rotating panel reporting information based on *anonymous* interviews. The LFS microdata dataset provides the longest time series of comparable and consistently defined individual level data that is available for the EU, and our sample consists of individuals between the ages of 16 and 64.

Year-on-year transitions are obtained based on the subjective assessment of the respondent's current and past working situation.⁵ In this way, the labour

⁵ The LFS questionnaire asks about (i) the individual's socio-economic situation one year before the survey date and (ii) their current professional status during the reference week (i.e. in period t). Our measure is therefore an 'annual' transition measure and presents a lower bound for labour market mobility. No information is available about labour market mobility within a

market status in the initial (t-1) and the final period (t) is the subjective assessment of the respondent's current and past working status, reported at the time of the survey (t).

Using data from subjective classifications prompt several methodological questions. First, whether subjective classifications capture actual levels of labour market turnovers, or they capture, in fact, the behaviour of individuals *potentially* moving across labour market statuses (see Brandolini *et al.*, 2006).³ Secondly, retrospective data can go wrong as people can forget, make mistakes or simply do not respond, naturally giving rise to spurious changes in statuses. Third, period-censoring (or, collecting answers referring to the survey year and the year before) does not allow capturing flows between survey dates.⁶

The anonymous nature of the LFS data does not allow tracking individuals over time. This breaks down any form of serial correlation between classification errors in our sample. In other words, reporting errors at a given survey date are independent of errors in previous LFS waves. Furthermore, we rule out the possibility that non-responses are captured as spurious changes in status, by necessarily excluding the number of individuals for which labour market classifications are not reported for the survey year and, retrospectively, for the year before. Finally, by construction of transition

particular year. In addition, a similar analysis using objective classifications for each labour market state (i.e. ILO definitions) is not feasible, owing to a lack of data. For further details see http://circa.europa.eu/irc/dsis/employment/info/data/eu_lfs.

⁶ The latter limitation – common to such kind of studies (Boeri and Flinn, 1999; Boeri and Garibaldi, 2009) – allows only observing labour market flows between the survey date (t) and the year before (t-1), without transitions in and out of a particular status (be it employment, unemployment or out of the labour market) in the interval (t; t-1) can be observed. This, clearly, represents a major concern in our analysis, given the interval considered across two subsequent periods is relatively long, i.e. one year. This limitation is likely to underestimate the degree of labour market turnover, especially for those individuals who often make transitions in and out of the labour market (e.g., part-time workers). A feasible alternative would be that of drawing on matched records across different LFS waves using national LFS data. However, the results might be anyway imprecise owing to the merging procedure and possible attrition and nonresponse issues, or errors in the classification of the labour market statuses across countries. For a discussion see Boeri and Flinn (1999).

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probabilities (i.e. the labour market status in the initial and the final period is the *subjective* assessment of the respondent's current and past working situation, reported at the time of the survey), any subjective bias between the "official" labour market status (i.e. as defined by the ILO) and its "reported" counterpart naturally simplifies out under the, likely, assumption that each individual's subjective bias is constant over time.

From the LFS, we construct raw probabilities of moving or remaining in any labour market status, together with an index of mobility (Shorrocks, 1987). Particularly, we consider nine possible transition probabilities across the statuses of employment, unemployment and out of the labour market (inactivity). The (*ex post*) probability of remaining in any particular labour market status is defined on the basis of the number of individuals being in that particular status i in both year t and $t-1$, as a percentage of individuals in the same status i in year $t-1$. Conversely, the probability of moving from one labour market status to another is defined as the ratio of the probability of remaining in any labour market status i , as defined previously, over the probability of an individual in status k in period $(t-1)$ turning to status i in period t .

For each country (j) the probability of moving across n labour market statuses between year $t-1$ and year t is thus a $(n \times n)$ matrix $(P_{i,k}^{jt})$ in which each individual element $p_{i,k}^{jt} = Pr\{S_t = i \mid S_{t-1} = k\}$ records the transition probability, with $i,k =$ employment (e), unemployment (u), out of the labour market or inactivity (na).

The measure of mobility used is the Shorrocks' (1987) mobility index, defined as:

$$M^t = [n - \text{trace}(P_{i,k}^{jt})]/(n-1) \quad (1)$$

By definition, the mobility index is bounded between [0,1], where, a value of zero implies no probability of leaving any labour market status, and a value of one implies full mobility.

At this stage, it should be noted that flows from and into the labour market are very different among them. In fact, people moving from inactivity to unemployment are different from people moving from inactivity to employment, as the former re-enter the labour market but do not find a job immediately. In this vein, distinguishing between flows into and out of inactivity can be retained in the probability of *successfully* re-entering the labour market (Marston, 1976; Theeuwes *et al.*, 1990). The latter is defined as:

$$SL^{jt} = p_{nan,e}^{jt} / (p_{nan,e}^{jt} + p_{nan,u}^{jt}), \quad (2)$$

which is the percentage of people *successfully* entering the labour market ($p_{nan,e}$) as a percentage of the number of people entering the labour market as a whole.

Analogously, people leaving unemployment to get back into employment are different from those who, once separated from their job, stop searching for a new one (i.e. they move from unemployment into inactivity). Thus, *unsuccessful* labour market outcomes are computed as:

$$FL^{jt} = p_{u,nan}^{jt} / (p_{u,nan}^{jt} + p_{u,e}^{jt}), \quad (3)$$

which is the percentage of people withdrawing from the labour market, as a percentage of people generally leaving unemployment (moving either back into employment or inactivity). It should be noted, however, that *unsuccessful* labour market outcomes may not represent labour market withdrawals *per sé*, as flows into inactivity also capture shifts into retirement or education. For this reason, when computing (un)successful labour market outcomes we

control for the statuses of retirement and education. A discussion is warranted in the next section.

2.2. Results

Table 2 provides a snapshot of average transition probabilities, over time and across countries, between different labour market statuses during the period 1998-2008 for the euro area, CEE EU countries, Denmark and Sweden. The table shows that the average probability of being employed in year $t-1$ and year t , i.e. the probability of *remaining* employed for two consecutive periods, is 94% on average in the CEE EU countries and around 93% in Sweden and the euro area. The same probability is below 90% in Denmark. The probability of remaining unemployed is around 60% in the euro area and CEE EU countries and about 40% in Denmark and Sweden. The probability of remaining inactive is between 85-90% in the euro area and the CEE EU countries but below 80% in Denmark and Sweden. Clearly, the probability of moving from employment to inactivity or the probability of moving from unemployment to inactivity is strongly associated with retirement flows and/or flows into the status of education. Controlling for education and retirement flows – setting up a 5-dimensional transition matrix including the statuses of e =employment, u =unemployment, nan =inactivity (this time, excluding education and retirement), plus ie =education and re =retirement – shows that the likelihood of remaining inactive (excluding retirement and education) for two consecutive periods falls to about 74% in Sweden. The

same probability is about 77% in CEE EU countries and in Denmark and 84% in the euro area.⁷

Table 2: Transition probabilities (full period, 1998 – 2008)

		Labour market status year t												
		CEE EU			Denmark			Sweden			Euro area			
		E	U	NA	E	U	NA	E	U	NA	E	U	NA	
Labour market status	1998-2008	E	94.051	3.125	3.420	89.427	2.434	8.337	93.273	2.269	4.624	93.860	3.111	3.177
		U	28.514	60.799	14.697	42.044	40.266	19.122	42.940	42.042	19.478	29.937	61.667	11.721
		NA	7.323	3.880	86.052	15.908	3.883	80.462	17.734	6.141	76.695	6.854	3.593	89.911
	1998-2003	E	92.462	4.406	4.299	88.829	2.803	8.396	94.026	2.325	3.849	93.728	3.153	3.083
		U	28.431	57.021	16.023	37.333	42.165	22.100	36.301	48.783	19.738	30.694	62.104	7.773
		NA	8.959	4.996	87.560	16.065	4.417	79.660	19.578	5.401	76.600	7.441	3.478	89.916
	2004-2008	E	94.360	2.702	2.902	89.580	2.227	8.321	92.949	2.244	4.878	93.933	2.885	3.208
		U	28.538	61.396	13.914	43.972	39.226	17.558	44.778	38.781	19.400	29.557	57.289	13.353
		NA	6.602	3.448	86.046	15.857	3.619	80.654	17.063	6.323	76.731	6.792	3.670	89.554

Note: E=employed; U=unemployed; NA=inactive so that EE = remains in employment between one year and the next; UU = remains in unemployment, NANA = remains in inactivity. For CEE EU and euro area countries observations are weighted according to the labour force share (15-64) in each country over the aggregate. Elements showing a probability of remaining in the same labour market state (employment, unemployment and inactivity) are in bold.

Sources: LFS microdata, authors' computations.

From Table 2, in the euro area and CEE EU countries the probability of moving from unemployment to employment is just below 30%, compared with over 40% in Denmark and Sweden. In the CEE EU countries and the euro area this is much lower than the probability of remaining in unemployment. In Denmark and Sweden, however, an unemployed person has the same probability of finding a job as remaining unemployed.

Comparisons of labour transition probabilities over time shows that in the CEE EU countries the number of people remaining in unemployment has increased over the last decade, whereas it decreased in Sweden, the euro area, and, to a lesser extent, Denmark (Figure 1).⁸ For the euro area, of those individuals unemployed in period t-1, the percentage remaining unemployed

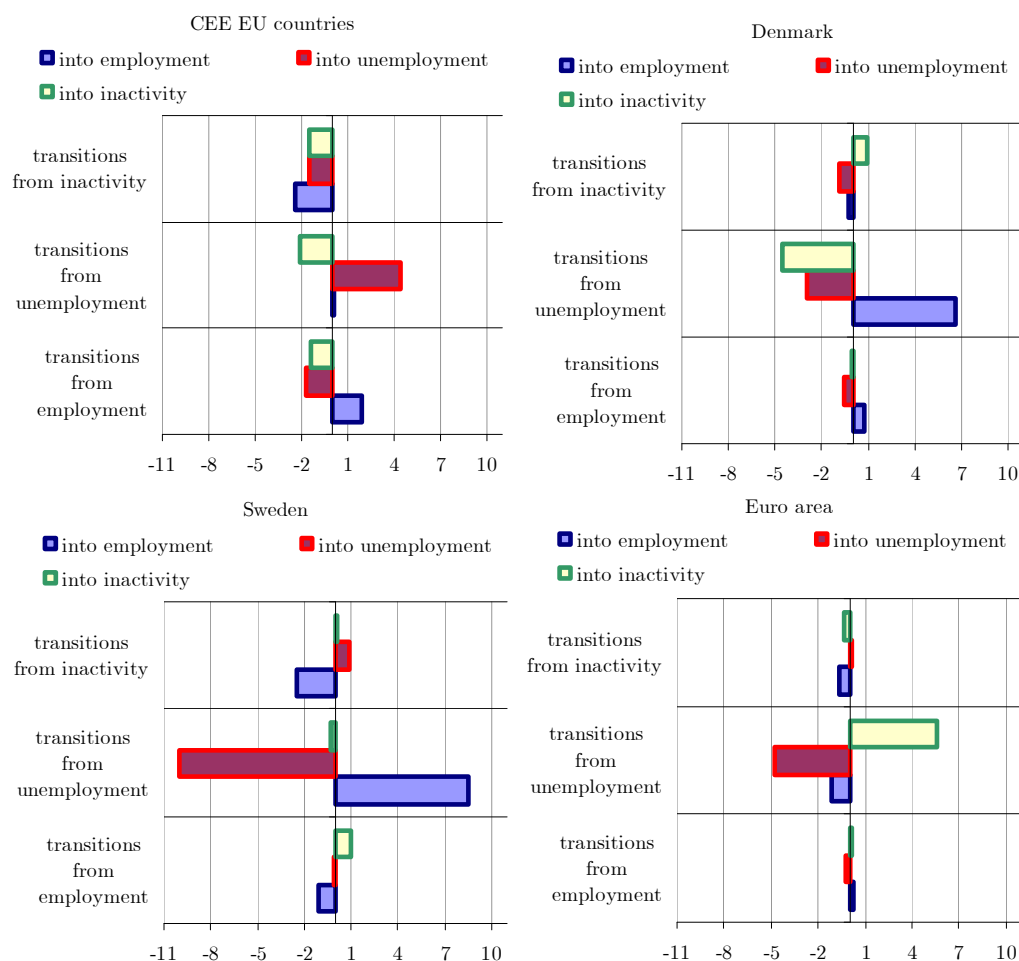
⁷ Those results are available upon request from the authors. An analysis of shifts into retirement or education is not provided here. For a discussion on retirement decisions see, *inter alia*, Aranki and Macchiarelli (2013).

⁸ The probability of remaining in unemployment has increased in Czech Republic, Hungary, Poland, Romania and Slovakia over the last decade, but has fallen in the Baltic countries (Estonia, Latvia and Lithuania). In Latvia and Lithuania the fall in the probability of remaining in unemployment was accompanied by a higher probability of transiting from unemployment to inactivity over time, while for Estonia this probability remained roughly similar across time.

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in period t decreased from 62% to 57%. For Denmark this number decreased from 42% to 39% and for Sweden from 48% to 38%. For CEE EU countries the same number increased instead from 57% to 61%, possibly as the result of economic growth after 1998 not being very employment intensive, as evidenced by the number of people remaining in employment during the period 1998-2003, compared to the period 2004-2008.⁹

Figure 1: Changes in transition probabilities over time (2004–2008 minus 1998-2003)



Sources: LFS microdata, authors' computations.

By contrast, the probability of remaining inactive fell over time in the CEE EU countries, while it remained broadly stable in Sweden and the euro area, and increased somewhat in Denmark. Finally, the probability of remaining in

⁹ Changes in the institutional arrangements and labour market composition (also in the light of labour market migration to Western Europe stemming from the EU accession in 2004) have contributed to this trend.

employment increased strongly in the CEE countries as well as – but to a smaller degree – in Denmark and the euro area. In Sweden, the number of people remaining in employment decreased over the last decade.

Turning to transitions between different labour market statuses, the probability of moving from unemployment to employment is found to be very high in Denmark and Sweden, compared to the euro area and CEE EU countries, in line, in the former case, with relatively fast hiring and firing dynamics compared to other continental EU labour markets. In addition, unemployment-to-employment flows have increased by about 7 percentage points over the last decade in both Denmark and Sweden (see Figure 1), while it remained constant in the CEE EU countries and slightly declined in the euro area.¹⁰ Flows in the opposite direction (i.e. unemployment to employment) have decreased overall in CEE countries, but also in Denmark, and, to a lesser extent, in Sweden and in the euro area.

The figures also shows that changes from unemployment to inactivity have overall fallen in the CEE EU countries, Denmark and Sweden where they strongly increased in the euro area.¹¹ As for the euro area, a change in definition for France also explains such high rates of transition out of the labour market.¹² The figure also suggests that transitions from inactivity into employment have decreased by about 2-3 percentage points in the CEE EU

¹⁰ Country-specific results point to the fact that flows from employment to unemployment or inactivity do not vary much across countries, whereas movements from unemployment to employment or inactivity as well as transitions from inactivity to employment show more pronounced cross- country variation.

¹¹ A change in definition for France explains the high rates of transition into inactivity for the euro area aggregates. These results do not change when controlling for education and retirement transitions.

¹² Results for the euro area must be taken cautiously, as the effect of this recodification can not be exactly quantified. As reported by the French National Institute of Statistics (INSEE) such an adjustment was adopted to make the unemployment definition conformable to the ILO criteria after 2003. For further details please see

http://www.insee.fr/fr/methodes/sources/pdf/estimations_chomageBIT_enquete_emploi.pdf

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countries and Sweden, while they have decreased by less than 1 p.p. in Denmark and the euro area.

Looking at the percentage of people successfully entering the labour market (*successful labour market entries, SL*), we find that this percentage has increased in CEE EU countries (from 59% to 60%), Denmark (from 60% to 67%), and Sweden (from 71% to 76%), while it has decreased in the euro area (from 64% to 58%) over the period 1998-2008, controlling for education and retirement flows (i.e. in fact, the notation $p_{nan,t}^{jt}$ in (2) refers to the number of people moving from inactivity (excluding retirement and education) into another state, and analogously for the formula in (3); see Table 3). Alternatively, the percentage of *unsuccessful labour market outcomes (UL)* has decreased in CEE EU countries (from 33% to 31%), Denmark (from 21% to 15%) and Sweden (from 21% to 15%). *UL* have increased only in the euro area (from 14% to 26%), net of transitions out of the labor market driven by education and retirement decisions.¹³

Table 3: Successful and unsuccessful labour market outcomes

	CEE EU	Denmark	Sweden	Euro area
<i>Successful labour market outcome</i>				
1998-2003	59.432	60.021	71.017	64.083
2004-08	60.378	66.767	76.091	57.745
<i>Unsuccessful labour market outcome</i>				
1998-2003	33.466	20.444	20.907	14.433
2004-08	31.275	14.471	15.517	26.167

Note: Results are based on a 5-dimensional transition probability matrix where statuses are defined as E=employed; U=unemployed; NAN=inactive (excluding education and retirement); RE=in retirement; IE=in education. Compared to the results where a 3-dimensional transition matrix is used (with E=employed; U=unemployed; NA=inactive), the results here holds in the light of NA=NAN+IE+RE. In other words, in computing successful and unsuccessful labour market outcomes we control for education and retirement flows when defining the status of inactivity. Following Theeuwes *et al.* (1990) a successful labour market entry is computed as the percentage of people *successfully* entering the labour market ($p_{nan,e}$) as a percentage of the total number of people entering the labour market, i.e. $SL^{jt} = p_{nan,e^{jt}} / (p_{nan,e^{jt}} + p_{nan,u^{jt}})$.

Analogously, an unsuccessful labour market outcome is the percentage of people withdrawing from the labour market (but not moving to either retirement or education), as a percentage of people leaving unemployment, i.e. $FL^{jt} = p_{u,nan^{jt}} / (p_{u,nan^{jt}} + p_{u,e^{jt}})$.

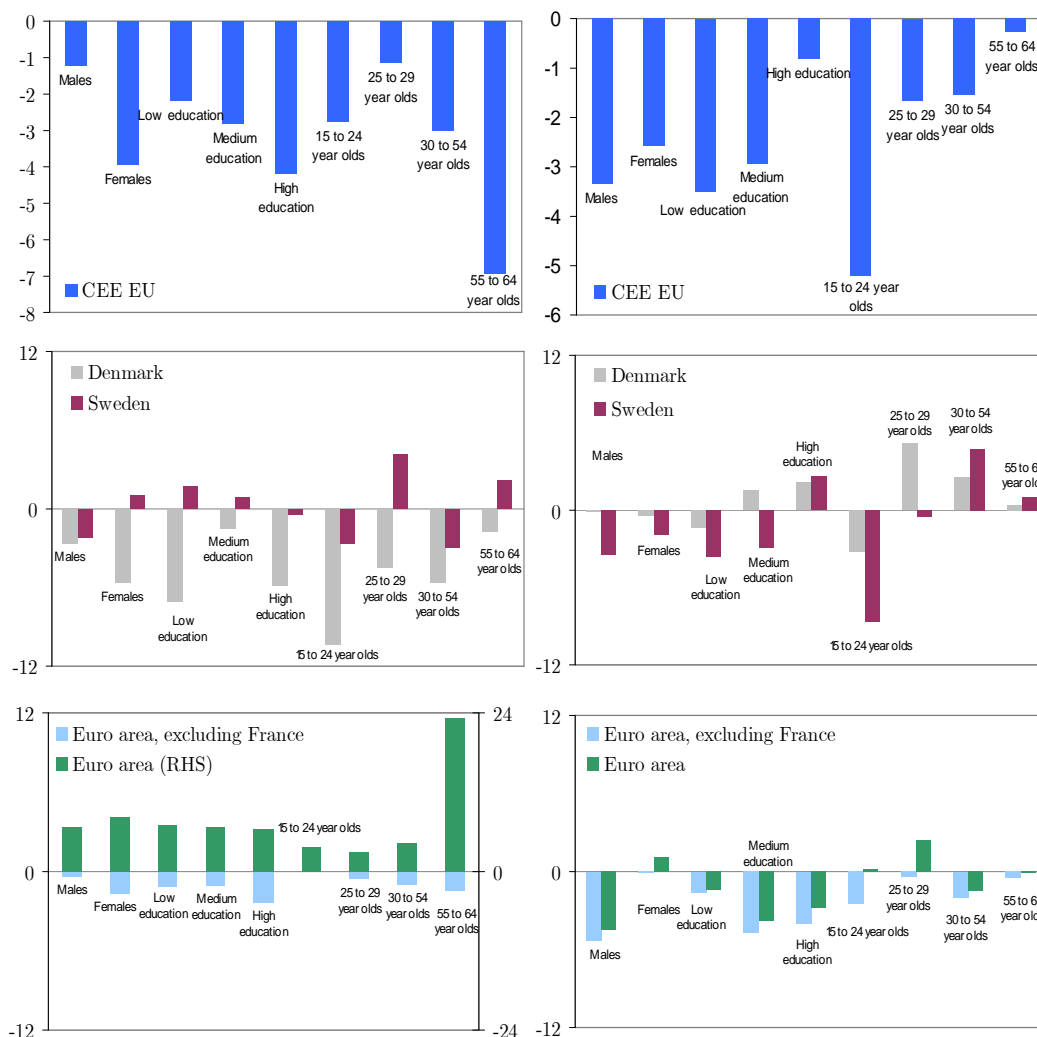
Sources: LFS microdata, authors' computations.

¹³ Possibly, also in the light of the aforementioned change in definition for unemployment in France.

Turning to changes in labour market inflows and outflows by worker group (Figure 2), the reduction in people leaving the labour market in the CEE EU countries over the last decade was mainly driven by females, the highly educated and the 55 to 64 age group. At the same time, these countries experienced on average a reduction in people leaving inactivity and going back to the labour market, mainly driven by people between the ages of 15 and 24, males and low educated people. In Sweden the fall in the unemployment to inactivity and, *viceversa* inactivity to employment flows, is mostly driven by people between the ages of 15 and 24. In Denmark the mobility of highly educated people and the 25-29 age group support increasing participation rates, given that flows out of the labour market decreased and flows back into the labour market increased over the same period. For the euro area, excluding France, the number of people transitioning from unemployment to inactivity has overall decreased (in 2004-2008 against the period 1998-2003) on average, mainly triggered by females and highly educated workers.¹⁴ The probability of moving from inactivity to employment in the euro area decreased as well, driven by males and medium educated people, while it did not change much, or even increased (when including France), for female workers and people between the ages of 25-29.

¹⁴ From Figure 2, the results of labour market outflows increasing in the euro area are shown to be mainly driven by France, where the aforementioned change in the definition for unemployment is likely to over-estimate labour market quits. As reported by the French National Institute of Statistics (INSEE) such an adjustment was adopted to make the unemployment definition conformable to the ILO criteria after 2003. For further details please see http://www.insee.fr/fr/methodes/sources/pdf/estimations_chomageBIT_enquete_emploi.pdf

Figure 2: Changes in the probability of moving from unemployment to inactivity (lhs) and in the probability of moving from inactivity to employment (rhs). (2004–2008 minus 1998-2003).



Note: The chart on the lhs presents the percentage change in unemployment to inactivity flows by different workers groups. For the CEE EU and the euro area bars refer to a weighted country average, where observations are weighted according to the proportion in each country of each sub-category (males, females, low, medium, high education,...) over the CEE EU and euro area aggregate, respectively. The chart on the rhs presents inactivity to employment reshuffles under the same reasoning.

Sources: LFS microdata, authors' computations.

2.2.1. Labour mobility

Decomposing the results by worker group shows that the chance of unemployed youths finding a job is in all countries much higher than for older groups. Analogously, unemployment scarring (or the probability to

remain in unemployment) is found to increase with age and is highest for individuals with lower educational attainment (Table 4).

Table 4: Transition probabilities by worker group

Labour market status year t-1	Year		Labour market status year t											
			CEE EU			Denmark			Sweden			Euro area		
			E	U	NA	E	U	NA	E	U	NA	E	U	NA
<i>Males</i>	1998-2003	E	93.202	4.726	3.136	90.759	2.562	6.800	94.315	2.655	3.251	94.720	2.895	2.480
		U	31.297	58.011	12.601	40.330	43.411	17.181	37.450	49.050	18.416	33.180	61.886	5.618
		NA	9.811	5.404	86.553	16.092	4.180	80.061	19.794	5.183	77.044	10.002	4.053	87.203
	2004-2008	E	95.417	2.776	1.923	91.354	2.091	6.660	94.439	2.285	3.282	94.867	2.682	2.454
		U	30.363	61.454	11.546	45.497	40.570	14.510	45.968	41.207	16.269	31.382	58.436	10.307
		NA	7.078	3.597	89.941	15.981	3.376	80.865	16.390	6.197	77.605	7.606	3.859	88.543
<i>Females</i>	1998-2003	E	91.569	4.050	5.707	86.535	3.120	10.326	93.720	1.985	4.512	92.380	3.539	3.913
		U	25.424	55.900	20.006	35.167	41.330	25.572	35.009	48.692	21.662	28.317	62.349	9.959
		NA	8.424	4.728	88.258	16.153	4.629	79.400	19.517	5.606	76.206	5.705	3.169	91.297
	2004-2008	E	93.052	2.631	4.117	87.511	2.395	10.259	91.262	2.237	6.710	92.716	3.165	4.183
		U	26.745	61.444	16.704	42.866	38.286	19.894	43.584	36.266	22.660	27.953	56.035	16.362
		NA	6.316	3.358	84.035	15.776	3.804	80.513	17.587	6.425	76.049	6.359	3.070	89.071
<i>Low education</i>	1998-2003	E	89.068	5.173	7.296	78.665	3.808	18.038	91.987	2.781	5.929	92.176	3.888	4.011
		U	21.820	58.596	21.920	30.616	45.883	26.277	30.376	53.902	21.901	27.441	65.260	7.930
		NA	6.588	1.908	93.192	10.153	2.945	87.415	13.289	3.498	83.958	4.152	2.554	93.679
	2004-2008	E	90.780	4.299	4.603	80.250	3.238	16.772	91.144	3.165	5.746	92.150	3.779	4.110
		U	19.664	66.559	19.870	38.657	42.737	19.249	34.726	44.311	23.565	23.675	63.350	13.311
		NA	3.496	1.322	89.320	8.790	2.443	88.761	9.653	5.869	84.327	3.070	2.631	94.320
<i>Medium education</i>	1998-2003	E	92.398	4.835	3.905	89.506	2.969	7.516	93.889	2.593	3.600	94.063	3.101	2.721
		U	30.928	55.904	14.608	39.996	40.534	20.821	37.850	47.839	18.169	32.645	60.091	7.859
		NA	10.210	7.752	83.422	18.726	4.287	77.481	23.927	9.689	69.245	10.738	4.640	86.535
	2004-2008	E	94.238	2.952	2.854	90.641	2.204	7.369	92.841	2.494	4.739	94.066	2.821	3.159
		U	31.325	59.702	12.347	43.442	38.476	19.334	46.571	37.641	19.055	32.969	54.178	12.985
		NA	7.818	4.774	84.179	20.251	3.571	76.406	20.968	8.435	71.193	8.771	4.399	86.879
<i>High education</i>	1998-2003	E	96.228	2.321	2.526	94.941	1.739	3.374	96.121	1.555	2.465	95.820	2.048	2.085
		U	40.971	48.689	14.062	44.451	39.022	18.907	43.537	47.098	15.516	42.641	51.833	6.743
		NA	22.025	9.087	70.265	27.877	9.924	62.924	30.750	5.456	67.054	21.112	7.841	71.710
	2004-2008	E	96.366	1.261	2.440	94.585	1.624	3.929	94.653	1.401	4.013	95.873	1.859	2.289
		U	41.852	51.404	10.550	53.135	34.837	13.078	50.838	37.368	15.081	40.729	46.715	12.962
		NA	21.381	7.801	70.730	30.018	7.294	63.201	33.376	6.851	60.513	20.140	8.082	71.889
<i>15-24 year olds</i>	1998-2003	E	86.145	8.703	6.519	57.651	2.791	39.808	78.334	4.728	18.185	87.109	7.722	5.546
		U	32.585	54.348	15.419	44.737	28.339	32.443	39.580	35.637	29.431	35.951	56.338	8.481
		NA	10.783	5.865	86.550	22.923	3.741	74.000	23.981	2.809	75.900	9.621	4.130	87.892
	2004-2008	E	89.362	6.119	4.457	54.668	2.740	42.591	73.592	6.405	20.584	86.871	6.773	6.700
		U	33.628	55.568	13.260	50.158	28.557	22.158	45.892	28.927	26.734	37.826	52.459	10.691
		NA	6.546	4.113	88.454	19.664	3.716	76.635	15.337	6.233	78.786	9.475	4.337	86.188
<i>25-29 year olds</i>	1998-2003	E	91.689	5.748	3.763	86.868	2.993	10.141	91.725	3.344	4.910	92.901	4.690	2.021
		U	33.740	55.130	13.190	49.021	31.107	21.704	45.745	39.632	16.269	35.689	59.050	6.494
		NA	18.391	10.435	72.549	31.246	10.843	59.084	34.363	7.372	61.263	18.780	9.029	73.634
	2004-2008	E	93.631	3.478	2.933	85.976	2.934	11.653	89.950	2.960	7.203	92.480	4.585	2.977
		U	34.599	57.268	12.195	55.755	29.857	17.234	49.702	32.889	20.438	39.137	52.886	8.462
		NA	17.176	8.678	65.308	36.351	7.631	56.287	33.833	9.685	57.531	20.214	10.373	69.528
<i>30-54 year olds</i>	1998-2003	E	94.396	3.911	2.690	94.854	2.687	2.489	96.416	2.050	1.538	95.789	2.469	1.633
		U	26.376	59.181	15.900	39.508	43.479	18.776	38.912	48.494	18.125	31.046	62.010	6.903
		NA	9.173	6.699	85.109	16.219	6.581	77.416	19.819	14.239	72.395	7.788	4.026	88.984
	2004-2008	E	96.013	2.393	1.557	95.748	2.086	2.303	95.485	1.862	2.715	95.944	2.453	1.630
		U	27.227	64.253	13.360	48.423	38.864	13.081	46.493	41.554	15.169	29.919	60.561	9.966
		NA	8.059	4.434	78.629	18.779	5.305	76.225	24.553	10.114	66.750	6.789	4.574	88.769
<i>55-64 year olds</i>	1998-2003	E	85.332	2.168	15.123	86.657	3.274	10.250	93.932	1.826	4.830	83.964	2.226	14.496
		U	17.472	50.432	36.321	18.198	53.554	29.683	23.508	66.290	18.766	17.031	69.676	16.542
		NA	3.568	0.941	95.866	0.619	0.846	98.773	3.202	5.293	94.524	0.888	0.873	98.556
	2004-2008	E	87.681	1.505	11.121	88.810	2.227	9.207	92.786	1.806	5.490	86.074	1.654	12.440
		U	15.987	63.543	29.815	25.342	50.221	27.996	34.685	50.797	20.931	10.752	57.050	31.601
		NA	3.285	0.617	94.773	1.041	0.575	98.413	4.190	3.463	93.777	0.769	0.610	98.675

Note: E=employed; U=unemployed; NA=inactive so that EE = remains in employment between one year and the next; UU = remains in unemployment, NANA = remains in inactivity. For CEE EU and euro area countries observations are weighted according to the labour force share (15-64) in each country over the aggregate. Elements showing a probability of remaining in the same labour market state (employment, unemployment and inactivity) are in bold.

Sources: LFS microdata, authors' computations.



Transitions in labour market status in the EU

Table 5 also provides a summary measure (the Shorrocks' index explained earlier) of labour market mobility.¹⁵ Importantly, the index summarizes the extent of the transitions between different economic activity statuses (employment, unemployment and inactivity).

Table 5: Mobility index

		CEE EU	Denmark	Sweden	Euro area
Total	1998-2003	0.315	0.447	0.403	0.271
	2004-2008	0.291	0.453	0.458	0.296
	<i>Total</i>	<i>0.295</i>	<i>0.449</i>	<i>0.440</i>	<i>0.272</i>
Males	1998-2003	0.311	0.429	0.398	0.281
	2004-2008	0.266	0.436	0.434	0.291
	<i>Total</i>	<i>0.273</i>	<i>0.433</i>	<i>0.422</i>	<i>0.276</i>
Females	1998-2003	0.321	0.464	0.407	0.270
	2004-2008	0.307	0.468	0.482	0.306
	<i>Total</i>	<i>0.311</i>	<i>0.465</i>	<i>0.459</i>	<i>0.275</i>
Low-education	1998-2003	0.296	0.440	0.351	0.244
	2004-2008	0.267	0.441	0.401	0.251
	<i>Total</i>	<i>0.264</i>	<i>0.438</i>	<i>0.382</i>	<i>0.234</i>
Medium-education	1998-2003	0.341	0.462	0.445	0.297
	2004-2008	0.309	0.472	0.492	0.324
	<i>Total</i>	<i>0.315</i>	<i>0.468</i>	<i>0.476</i>	<i>0.303</i>
High-education	1998-2003	0.424	0.516	0.449	0.403
	2004-2008	0.408	0.537	0.537	0.428
	<i>Total</i>	<i>0.408</i>	<i>0.531</i>	<i>0.514</i>	<i>0.408</i>
16-24 years olds	1998-2003	0.365	0.700	0.551	0.343
	2004-2008	0.333	0.701	0.593	0.372
	<i>Total</i>	<i>0.337</i>	<i>0.700</i>	<i>0.582</i>	<i>0.359</i>
25-29 years olds	1998-2003	0.403	0.615	0.537	0.372
	2004-2008	0.419	0.639	0.598	0.426
	<i>Total</i>	<i>0.412</i>	<i>0.631</i>	<i>0.579</i>	<i>0.397</i>
30-54 years olds	1998-2003	0.307	0.421	0.413	0.261
	2004-2008	0.306	0.446	0.481	0.274
	<i>Total</i>	<i>0.305</i>	<i>0.437</i>	<i>0.460</i>	<i>0.258</i>
55-64 years olds	1998-2003	0.342	0.305	0.226	0.239
	2004-2008	0.270	0.313	0.313	0.287
	<i>Total</i>	<i>0.279</i>	<i>0.309</i>	<i>0.281</i>	<i>0.224</i>

Notes: Measures are based on the Shorrocks' mobility index (mobility is higher the closer the index is to 1). For CEE EU and euro area countries observations are weighted according to the labour force share (15-64) in each country over the CEE EU and euro area aggregate, respectively. Sub-groups are weighted instead according to the proportion in each country of each sub-category (males, females, low, medium, high education,...) over the CEE EU and euro area aggregates, respectively.. Highest mobility indexes for each sub-category across the periods 1998-2003 and 2004-2008 are in bold.

Sources: LFS microdata, authors' computations.

¹⁵ As summarized before, the Shorrocks' index is a proxy index for mobility. For example, with respect to the results in Tables 2 and 3, the decrease in state persistence over time (i.e. the reduction of the elements on the main diagonal from 1998-2003 to 2004-2008) implies an increase in the mobility index across the two sub-periods.

The mobility index reflects an increase in labour market churning over time in Denmark, the euro area and, in particular, Sweden. On the contrary, the Shorrocks summary index for the periods 1998-2004 and 2004-2008 reveals a decrease in labour market mobility over time in the CEE EU countries. Following the changes in the labour market structure for some CEE EU, a high mobility during the period 1998- 2003 suggest higher returns to job changes and a less stringent labour market segmentation in the allocation of job offers after the reforms, as reported e.g., in Boeri and Flinn (1997). Conversely, the observed decline of mobility after 2004 – to values “converging” to what observed for the euro area – suggests a stabilization of labour markets in the region, but also a less efficient matching of individuals with jobs, as evidenced by the increase in the probability to remain in unemployment.¹⁶ In the euro area, Sweden, and, to lesser extent, Denmark, mobility increased over the whole period 1998-2008, essentially as the result of a fall in the probability of remaining in unemployment.

The mobility index also confirms that, in the euro area, mobility is particularly high for people between the ages of 25 and 29 and highly educated people, and has overall increased over time. Also, in the euro area mobility has generally increased for females, explaining the existence of no significant differences in the mobility index by gender (male vs. females) on a full period average. In the euro area, women and young people exhibit higher mobility over time through a decreasing probability to remain in both unemployment and inactivity. Analogously, highly educated workers are more mobile through a decreased probability to remain in unemployment over time.

¹⁶ Particularly, the fall in mobility in the CEE EU countries from 2004 should be read in light of the political demand for social security after the transition period (early 90s). At that time several program of unemployment benefits, social security, income support and severance pay were put in place, with the (often mistaken) aim to enhance flexibility of workers and reduce long-term unemployment. Such active labour market spending seemed not to have crucially enhanced stagnation on unemployment pools before 2004 but, on the contrary, they seemed to create inefficiencies by means of displacement effects in the second period (2004-2008).

Transitions in labour market status in the EU

From Table 5, in Denmark and Sweden people between the ages of 16-24 are the most mobile on average and their mobility has increased over time. Such behaviour is always driven by a lower probability of remaining in employment, unemployment and inactivity compared to the euro area aggregates (see Table 4). This pattern, which is also found for Finland – among other euro area countries, confirms a feature common to Nordic EU countries. In Sweden and Denmark, highly educated individuals display both a higher probability of remaining in employment and a lower probability of remaining in unemployment and inactivity over time, while female workers display a lower probability of remaining in both employment and unemployment over time (Table 4).

In CEE EU countries mobility is higher for females, highly educated people and workers between the ages of 25 and 29, though this pattern has overall decreased over time. In these countries, the higher mobility of women is driven by a lower probability over time of remaining in employment and unemployment. Highly educated individuals in the CEE EU countries are more mobile through a lower probability over time of remaining in inactivity and employment.

2.2.2. Pooling the results

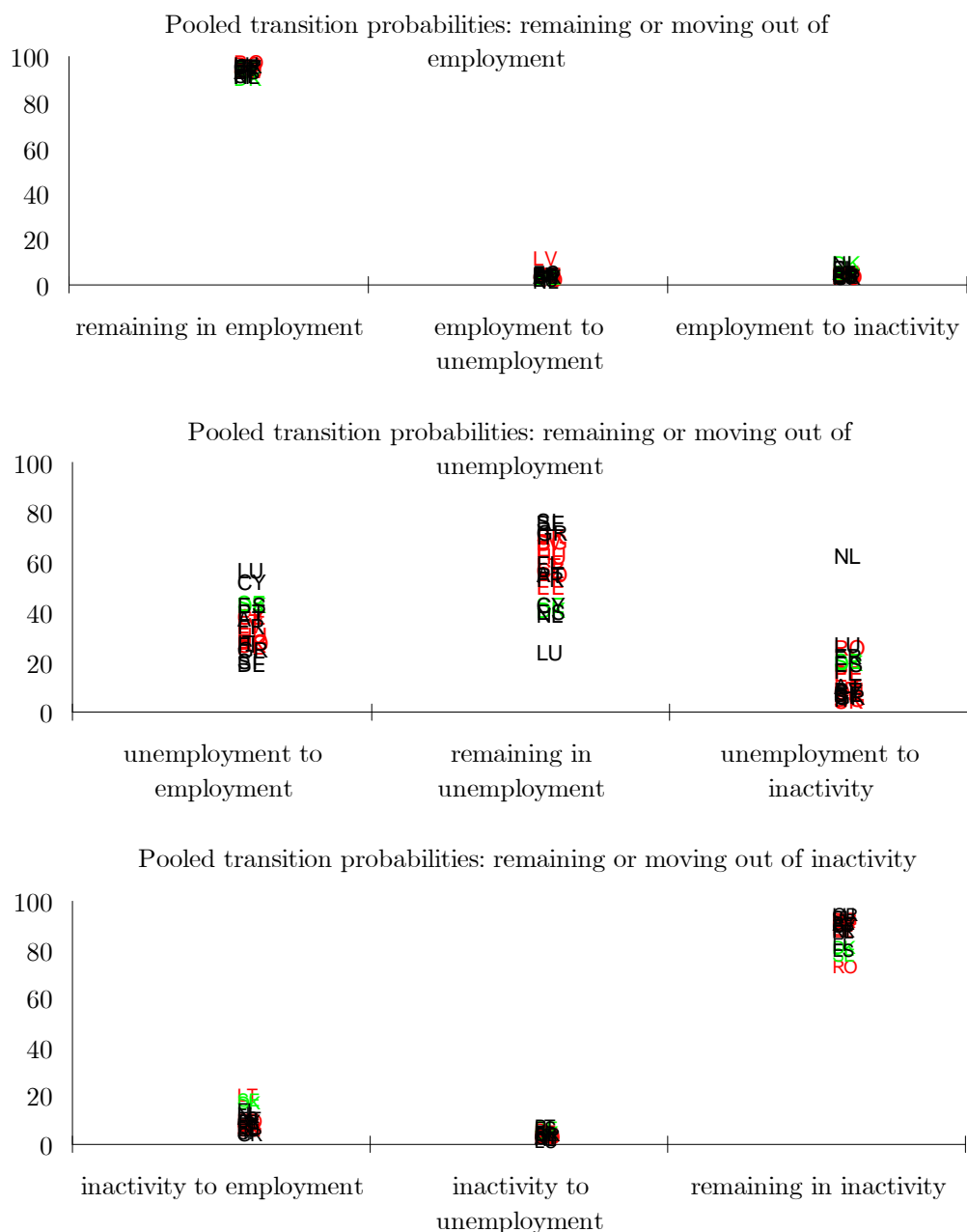
As well as over time, it is interesting to consider how labour market mobility and transitions varied across EU countries and workers groups. While some empirical patterns are observed in all countries (e.g. the probability of remaining unemployed is several times higher than the probability of an employed individual turning unemployed), cross-country differences in the degree of mobility among different labour market statuses do exist. Particularly, by pooling results, we find that the probability of remaining in

employment and, to a lesser extent, inactivity over two periods ($t-1$ and t) is very similar across countries (Figure 3). The results also emphasises the very small variation across countries in the low probability of moving from employment into either unemployment or inactivity. Significant differences across countries are found in the probability of remaining unemployed over two consecutive periods, and in the transitions out of unemployment. Looking at cross-country differences, the probability of remaining unemployed is on average over 70% in, Belgium, Greece and Slovenia, or slightly below in Italy, Bulgaria, Latvia and Slovakia. This probability is almost twice that of the probability in Denmark, Sweden, Spain, the Netherlands and Cyprus and more than two-thirds that of the probability in France, Austria, Portugal, Estonia and Romania. This probability is around 60% in Finland, Czech Republic, Lithuania, Hungary and Poland and about only 24% in Luxembourg.

Furthermore, while the probability of remaining in unemployment has increased over time in Italy, Portugal, Cyprus, Czech Republic, Hungary, Poland, Romania and Slovakia, it has fallen in Belgium, Greece, France, Austria, Slovenia, the Baltic countries (Estonia, Latvia and Lithuania), Denmark and Sweden (Table 6).

Figure 3: Transition probabilities across countries

Transitions in labour market status in the EU



Notes: The chart refers to pooled transition probabilities results for 23 EU countries. Euro area countries (black label): Spain (ES), Italy (IT), France (FR), the Netherlands (NL), Belgium (BE), Austria (AT), Cyprus (CY), Finland (FI), Greece (GR), Luxemburg (LU), Portugal (PT), Slovenia (SI); CEE EU countries (red label): Czech Republic (CZ), Estonia (EE), Latvia (LV), Lithuania (LT), Hungary (HU), Poland (PL), Romania (RO) and Slovakia (SK); Denmark (DK) and Sweden (SE) (green label).

Sources: LFS microdata, authors' computations.

Table 6: Transition probabilities across country

		Labour market status year t																							
		Bulgaria			Czech Republic			Estonia			Latvia			Lithuania			Hungary			Poland					
		E	U	NA	E	U	NA	E	U	NA	E	U	NA	E	U	NA	E	U	NA	E	U	NA			
Labour market status year t-1	1998-2008	E	95.599	2.437	1.942	92.579	3.110	4.510	93.337	3.680	3.826	92.980	11.010	3.967	94.008	3.635	2.685	93.047	3.313	3.715	93.307	3.577	3.319		
		U	27.737	67.709	4.455	37.622	56.023	6.909	37.716	49.667	14.770	34.443	67.339	6.412	35.620	58.203	8.816	30.485	61.606	8.166	25.334	64.589	15.366		
		NA	5.819	2.382	91.800	7.152	2.769	90.816	9.381	3.927	87.272	9.638	2.059	89.652	19.624	4.812	87.686	5.505	2.321	92.210	5.882	5.326	90.039		
	1998-2003	E	--	--	--	92.028	3.492	4.584	90.993	4.879	4.342	89.975	34.582	10.101	93.150	4.707	2.337	93.442	3.311	3.296	92.053	4.509	3.737		
		U	--	--	--	39.913	53.444	7.773	33.265	53.741	14.297	28.892	85.738	4.061	30.366	66.840	4.148	31.542	58.576	9.985	23.611	59.398	18.179		
		NA	--	--	--	9.130	3.262	88.127	9.279	4.881	86.208	8.744	1.947	94.450	42.238	7.622	76.389	5.654	2.197	92.192	6.444	7.002	87.133		
	2004-2008	E	95.599	2.437	1.942	92.854	2.878	4.473	94.540	2.150	3.462	93.257	3.750	3.057	94.130	3.408	2.727	92.917	3.314	3.830	93.633	3.255	3.193		
		U	27.737	67.709	4.455	36.413	57.130	6.492	40.985	44.741	15.180	35.223	58.401	6.849	36.930	54.863	9.506	30.156	62.453	7.451	25.781	65.915	13.782		
		NA	5.819	2.382	91.800	5.859	2.489	91.908	9.431	2.991	87.829	9.741	2.090	88.327	7.409	3.959	88.905	5.453	2.359	92.217	5.716	4.601	90.724		
			Romania			Slovakia			Spain			Netherlands			Belgium			France			Italy				
	1998-2008	E	96.742	1.233	2.993	93.665	3.522	3.343	92.301	4.305	3.607	90.119	0.885	8.964	94.225	2.739	3.048	92.969	3.725	3.583	95.229	2.465	2.395		
		U	26.949	54.333	24.697	26.634	69.841	3.746	42.220	39.458	18.726	--	37.901	62.099	18.613	75.098	6.500	33.765	52.419	21.733	26.650	69.628	4.704		
		NA	8.881	2.753	72.148	5.577	3.554	91.281	10.184	6.223	78.830	12.294	1.016	86.782	6.287	3.077	90.784	9.081	3.887	87.221	4.454	3.042	92.874		
	1998-2003	E	93.374	1.761	5.465	91.604	5.000	3.434	--	--	--	--	--	--	94.417	2.803	2.998	92.847	4.262	2.929	95.238	2.032	2.775		
		U	29.184	46.960	25.152	28.460	68.092	3.526	--	--	--	--	--	--	16.868	76.975	6.602	33.128	58.119	9.173	30.682	64.923	5.037		
		NA	10.557	3.497	86.426	4.808	5.374	89.946	--	--	--	--	--	--	5.913	4.149	90.817	8.138	3.649	88.285	5.667	2.787	91.721		
	2004-2008	E	97.242	1.112	1.078	94.033	3.004	3.325	92.301	4.305	3.607	90.119	0.885	8.964	94.145	2.712	3.067	93.109	2.990	3.902	95.226	2.605	2.209		
		U	26.646	55.163	24.625	26.157	70.234	3.793	42.220	39.458	18.726	--	37.901	62.099	19.241	74.297	6.456	34.736	38.678	26.543	24.404	71.487	4.532		
		NA	8.640	2.626	70.025	5.703	2.895	91.527	10.184	6.223	78.830	12.294	1.016	86.782	6.432	2.464	90.769	10.099	4.154	85.745	3.501	3.156	93.410		
			Austria			Cyprus			Finland			Greece			Luxembourg			Portugal			Slovenia				
	1998-2008	E	92.306	2.944	4.446	94.394	2.762	3.063	89.570	3.761	6.769	95.162	2.894	2.151	95.567	1.444	3.085	93.368	3.705	3.020	90.743	3.520	6.450		
		U	37.077	54.497	9.756	51.410	42.331	7.289	26.445	58.267	15.790	24.343	70.755	5.102	55.857	23.183	26.577	39.373	53.711	7.614	19.720	75.568	5.806		
		NA	10.439	1.920	89.762	9.084	2.134	88.977	13.828	4.670	81.754	3.121	3.226	93.812	5.692	0.388	94.132	6.439	6.864	86.980	3.946	3.689	92.864		
	1998-2003	E	90.021	3.099	4.445	93.414	2.885	3.908	89.127	3.893	7.047	94.521	3.488	2.188	96.354	1.002	2.804	93.559	3.211	3.398	94.449	2.880	3.924		
	U	26.376	59.283	14.969	55.498	37.099	8.516	26.218	59.272	14.633	24.114	71.212	5.262	55.049	28.847	19.834	43.686	47.055	10.085	15.432	81.508	5.088			
	NA	19.567	2.823	90.510	9.238	1.770	89.274	13.278	5.048	81.915	3.330	3.880	92.955	6.437	0.274	93.631	7.525	5.423	87.230	3.955	2.829	94.567			
2004-2008	E	92.701	2.915	4.447	94.681	2.724	2.708	90.126	3.571	6.382	95.391	2.597	2.139	95.322	1.522	3.160	93.297	3.854	2.854	89.765	3.643	6.724			
	U	37.990	53.783	8.593	50.027	43.637	6.850	26.799	56.579	17.345	24.440	70.558	5.032	55.996	21.599	27.512	38.227	55.030	6.817	20.800	73.401	5.935			
	NA	8.674	1.749	89.614	9.026	2.242	88.874	14.437	4.124	81.563	3.022	2.851	94.170	5.407	0.422	94.305	5.883	7.293	86.878	3.944	3.800	92.347			

Note: E=employed; U=unemployed; NA=inactive so that EE = remains in employment between one year and the next; UU = remains in unemployment, NANA = remains in inactivity. For CEE EU and euro area countries observations are weighted according to the labour force share (15-64) in each country over the aggregate. Elements showing a probability of remaining in the same labour market state (employment, unemployment and inactivity) are in bold. The results exclude Denmark and Sweden (see Table 2).

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Further, on the basis of the Shorrocks' mobility index, labour markets in some countries are characterised by more mobility than others (see Table 7). As expected, labour markets in Denmark and Sweden are more mobile on average, together with that of Spain, the Netherlands, France and Luxemburg. This is evidenced by a higher Shorrocks' mobility index, which is twice as high in these countries relative to Bulgaria, the Slovak Republic, Poland, Latvia, Hungary, Italy, Belgium, Greece and Slovenia. A group of countries reporting intermediate mobility is represented instead by the Czech Republic, Estonia, Lithuania, Romania, Austria, Finland, Cyprus and Portugal. Table 7 also shows that on average highly educated individuals and people between the ages of 25-29 are the most mobile across labour market statuses. Moreover, while for Denmark, Sweden and the euro area mobility of all worker groups has increased over the last decade (particularly for females) there is no clear pattern for the disaggregated CEE EU countries. The highest mobility groups overall are the 16 to 24 age group in Denmark and Sweden, the 25 to 29 year olds in Romania, people with high educational attainment in the Slovak Republic, the 25 to 29 age group in Spain and the 16-24 age group in Finland (Table 7).

Table 7: Mobility index across country and worker group

		CEE EU countries										Euro area												
		BG	CZ	EE	LV	LT	HU	PL	RO	SK	DK	SE	ES	NL	BE	FR	IT	AT	CY	FI	GR	PT	SI	
Total	1998-2003	--	0.332	0.345	0.149	0.318	0.279	0.307	0.366	0.252	0.447	0.403	--	--	0.189	0.304	0.241	0.301	0.401	0.348	0.207	0.361	0.147	
	2004-2008		0.224	0.291	0.364	0.300	0.311	0.262	0.249	0.388	0.221	0.453	0.458	0.447	0.426	0.204	0.412	0.199	0.320	0.364	0.359	0.199	0.324	0.222
	Total		0.224	0.303	0.349	0.250	0.301	0.266	0.260	0.384	0.226	0.449	0.440	0.447	0.426	0.199	0.337	0.211	0.317	0.371	0.352	0.201	0.330	0.204
Males	1998-2003	--	0.324	0.337	0.143	0.311	0.261	0.307	0.368	0.243	0.429	0.398	--	--	0.198	0.303	0.269	0.272	0.404	0.312	0.238	0.361	0.147	
	2004-2008		0.238	0.283	0.341	0.282	0.307	0.245	0.249	0.299	0.212	0.436	0.434	0.457	0.088	0.211	0.392	0.205	0.308	0.362	0.321	0.232	0.323	0.213
	Total		0.238	0.295	0.332	0.235	0.296	0.249	0.260	0.306	0.217	0.433	0.422	0.457	0.088	0.207	0.333	0.224	0.303	0.371	0.315	0.233	0.330	0.196
Females	1998-2003	--	0.344	0.360	0.158	0.319	0.306	0.309	0.367	0.264	0.464	0.407	--	--	0.186	0.307	0.225	0.353	0.403	0.384	0.193	0.367	0.150	
	2004-2008		0.213	0.302	0.387	0.322	0.313	0.281	0.251	0.433	0.232	0.468	0.482	0.450	0.558	0.201	0.433	0.200	0.340	0.367	0.397	0.186	0.328	0.234
	Total		0.213	0.315	0.367	0.270	0.303	0.285	0.263	0.423	0.237	0.465	0.459	0.450	0.558	0.196	0.342	0.207	0.342	0.374	0.389	0.188	0.334	0.214
Low-education	1998-2003	--	0.245	0.321	0.140	0.307	0.242	0.268	0.393	0.176	0.440	0.351	--	--	0.161	0.263	0.222	0.296	0.392	0.278	0.181	0.347	0.120	
	2004-2008		0.192	0.217	0.334	0.274	0.283	0.224	0.198	0.391	0.130	0.441	0.401	0.398	0.342	0.172	0.373	0.165	0.302	0.320	0.295	0.174	0.305	0.206
	Total		0.192	0.225	0.321	0.222	0.277	0.228	0.213	0.388	0.138	0.438	0.382	0.398	0.342	0.168	0.292	0.181	0.301	0.335	0.284	0.176	0.312	0.184
Medium-education	1998-2003	--	0.377	0.366	0.167	0.332	0.321	0.338	0.367	0.301	0.462	0.445	--	--	0.217	0.338	0.263	0.301	0.405	0.419	0.228	0.386	0.167	
	2004-2008		0.271	0.332	0.383	0.324	0.332	0.294	0.265	0.393	0.263	0.472	0.492	0.457	0.453	0.231	0.437	0.234	0.335	0.364	0.409	0.202	0.335	0.238
	Total		0.271	0.345	0.368	0.275	0.319	0.300	0.279	0.390	0.269	0.468	0.476	0.457	0.453	0.227	0.370	0.243	0.330	0.373	0.414	0.209	0.342	0.221
High-education	1998-2003	--	0.454	0.408	0.196	0.416	0.380	0.460	0.402	0.481	0.516	0.449	--	--	0.331	0.415	0.417	0.385	0.495	0.441	0.300	0.546	0.259	
	2004-2008		0.302	0.421	0.430	0.397	0.415	0.399	0.405	0.399	0.441	0.537	0.537	0.520	0.549	0.326	0.502	0.342	0.372	0.501	0.440	0.313	0.499	0.386
	Total		0.302	0.429	0.416	0.343	0.411	0.395	0.411	0.397	0.445	0.531	0.514	0.520	0.549	0.328	0.451	0.358	0.373	0.499	0.440	0.310	0.505	0.362
16-24 years olds	1998-2003	--	0.434	0.411	0.193	0.366	0.351	0.344	0.397	0.332	0.700	0.551	--	--	0.304	0.414	0.256	0.414	0.461	0.601	0.261	0.456	0.221	
	2004-2008		0.231	0.377	0.437	0.383	0.401	0.307	0.327	0.326	0.284	0.701	0.593	0.563	--	0.341	0.443	0.241	0.455	0.437	0.584	0.268	0.417	0.454
	Total		0.231	0.396	0.418	0.301	0.381	0.317	0.330	0.336	0.292	0.700	0.582	0.563	--	0.329	0.422	0.246	0.450	0.443	0.593	0.264	0.426	0.383
25-29 years olds	1998-2003	--	0.420	0.442	0.201	0.422	0.364	0.423	0.400	0.383	0.615	0.537	--	--	0.358	0.472	0.276	0.411	0.514	0.533	0.297	0.475	0.298	
	2004-2008		0.313	0.384	0.446	0.388	0.464	0.362	0.388	0.528	0.347	0.639	0.598	0.590	--	0.391	0.572	0.292	0.409	0.526	0.547	0.309	0.472	0.448
	Total		0.313	0.395	0.438	0.325	0.436	0.362	0.395	0.488	0.353	0.631	0.579	0.590	--	0.381	0.505	0.286	0.409	0.521	0.535	0.304	0.468	0.411
30-54 years olds	1998-2003	--	0.304	0.360	0.157	0.312	0.259	0.299	0.379	0.207	0.421	0.413	--	--	0.164	0.290	0.256	0.287	0.369	0.380	0.169	0.332	0.118	
	2004-2008		0.246	0.275	0.355	0.294	0.314	0.255	0.220	0.515	0.203	0.446	0.481	0.416	0.276	0.194	0.383	0.192	0.297	0.339	0.397	0.179	0.306	0.162
	Total		0.246	0.284	0.350	0.249	0.305	0.256	0.236	0.486	0.204	0.437	0.460	0.416	0.276	0.184	0.319	0.209	0.295	0.345	0.386	0.171	0.308	0.151
55-64 years olds	1998-2003	--	0.364	0.333	0.129	0.202	0.269	0.374	0.378	0.289	0.305	0.226	--	--	0.134	0.242	0.277	0.265	0.335	0.206	0.167	0.203	0.175	
	2004-2008		0.204	0.276	0.352	0.230	0.259	0.271	0.215	0.376	0.226	0.313	0.313	0.320	0.472	0.125	0.497	0.159	0.248	0.238	0.230	0.169	0.213	0.232
	Total		0.204	0.292	0.336	0.204	0.245	0.270	0.230	0.377	0.232	0.309	0.281	0.320	0.472	0.127	0.284	0.184	0.251	0.254	0.215	0.169	0.211	0.222

Notes: Measures are based on the Shorrocks' mobility index. Highest mobility indexes for each sub-category across the periods 1998-2003 and 2004-2008 are in bold. The table refers to 23 EU countries: Spain (ES), Italy (IT), France (FR), the Netherlands (NL), Belgium (BE), Austria (AT), Cyprus (CY), Finland (FI), Greece (GR), Luxemburg (LU), Portugal (PT), Slovenia (SI); Czech Republic (CZ), Estonia (EE), Latvia (LV), Lithuania (LT), Hungary (HU), Poland (PL), Romania (RO) and Slovakia (SK); Denmark (DK) and Sweden (SE).

Sources: LFS microdata, authors' computations.

3. What's behind mobility? A quick look

While the analysis carried out in earlier was aimed at providing a description of the degree of labour market turnover in the EU, in this section we complement this information by looking at macroeconomic trends in employment (both part-time and temporary), unemployment and the evolution of structure indicators (EPL, product market regulation, etc.). Our objective is to understand whether part of the observed changes in mobility can be broadly restraint to some “macro” explanatory factors.

Not surprisingly, the increase in mobility observed in some countries can be linked to the use of time-limited contracts and part-time work, and *viceversa*. Figure 4 (top and medium panels) shows that, broadly speaking, those countries where mobility increased over time are also those where the percentage of time limited contracts and part time work increased. However, the correspondence is not one-to-one. Further, Latvia represents a major exception, as the observed increase in mobility is not found to be associated with an increase in the share of temporary or part-time jobs.

In addition, there is no clear correspondence between unemployment rate and mobility. In most countries increases in mobility are associated with a reduction of unemployment over time (Figure 4, bottom panel). Overall, however, in some countries mobility decreased and so too did unemployment rates (notably, Slovakia, Italy, Poland and the Czech Republic), suggesting that while a certain level of turnover is necessary for healthy labour markets (see also Boeri and Garibaldi, 2009), it may not be sufficient (also depending on the direction in which changes in labour market statuses are observed; see Section 2).

Focusing on structure indicators (Figure 5), changes in mobility over time seem to be negatively related with changes in the strictness of Employment

Protection Legislation (EPL),¹⁷ i.e. less regulation favours labour market turnovers and *viceversa*, especially in Sweden, Czech Republic and Poland. A similar pattern does not exist for Italy and Portugal, among the euro area countries, or Slovakia. Further, changes in the mobility index are, in most cases, correlated with changes in the expenditure on 'active' labour market policies, such as direct job creation, and, to a lesser extent, employment incentives.¹⁸ A reduction in direct job-creation expenditures is associated with decreasing mobility over time in Italy and Portugal – among the euro area countries – and Slovakia. On the contrary, in France and Sweden a reduction in direct-job creation expenditure is positively associated with increased mobility.

The expenditure on out-of-work maintenance and support (including unemployment benefits, expenditure on early retirement,¹⁹ etc...) is found to be negatively related with mobility over time. This is particularly clear for countries such as Italy, Portugal and Sweden, where increases (decreases) in the expenditure on out-of-work benefits are coupled with lower (higher) mobility over time. Poland and Slovakia provide the opposite picture.

Finally, a decrease in product market regulation is related with increased mobility over time in almost all countries – with the exceptions of Italy and Portugal – among euro area countries – and mainly Poland, Czech Republic and Slovakia – among the CEE EU countries.²⁰

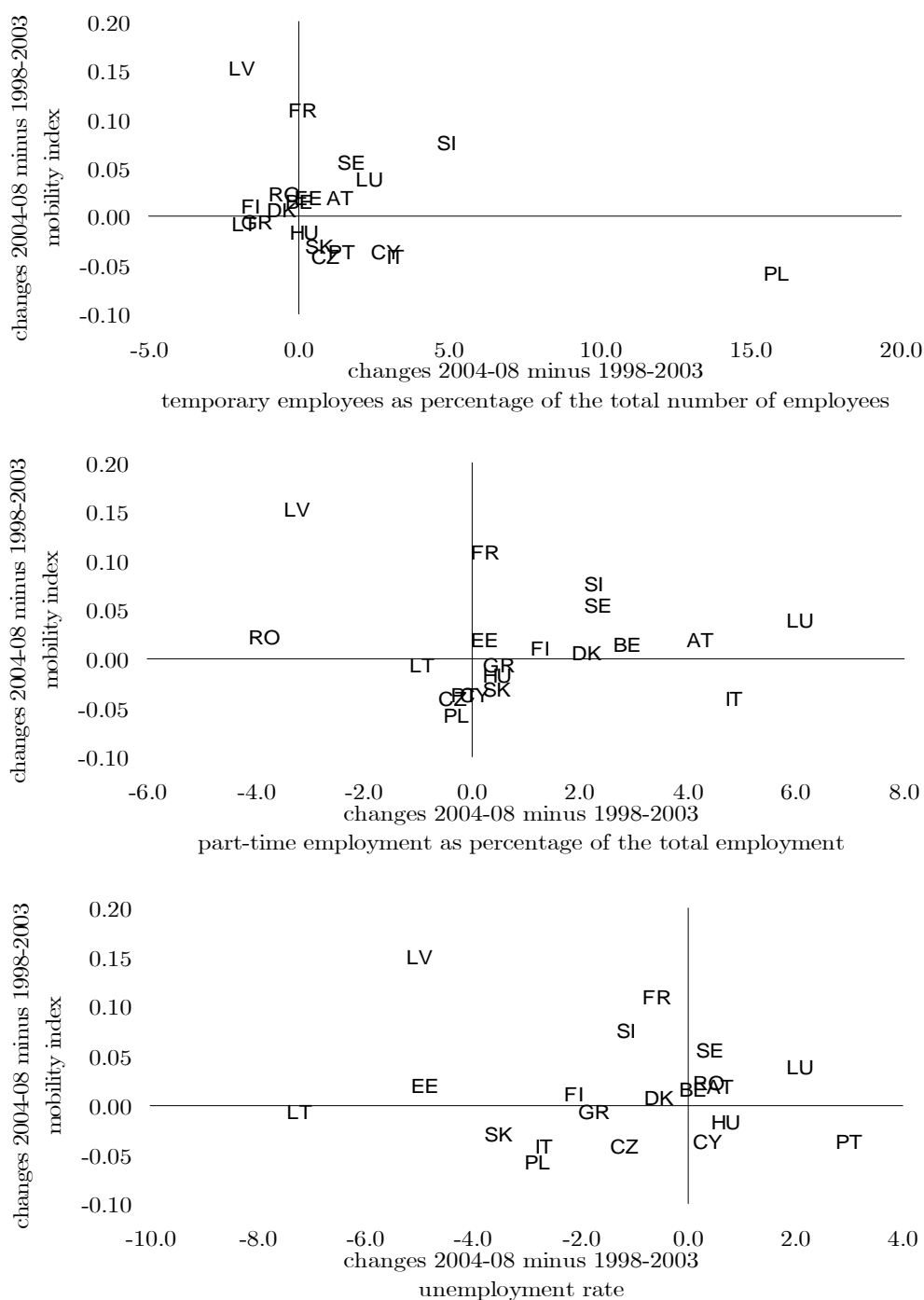
¹⁷ EPL is likely to proxy institutional factors such as the degree of unionization, minimum wage policies, etc.

¹⁸ With employment incentives we mean benefits paid to beneficiaries with low earning from part-time or intermittent jobs. See OECD.stat database.

¹⁹ This type of expenditure refers to a scheme which allows (older) workers – already on unemployment benefits – to move to a similar benefit scheme where the work availability requirement is no longer necessary.

²⁰ For the former, the pattern is, however, in line with the idea that a higher regulation is expected to reduce employment by slowing down the pace at which displaced workers find new jobs (see also Burgess et al., 2000), resulting into a lower level of labour turnover.

Figure 4: Mobility index vs. employment and unemployment



Notes: Where available, the chart refers to pooled transition probabilities results for 23 EU countries. Spain (ES), Italy (IT), France (FR), the Netherlands (NL), Belgium (BE), Austria (AT), Cyprus (CY), Finland (FI), Greece (GR), Luxemburg (LU), Portugal (PT), Slovenia (SI); Czech Republic (CZ), Estonia (EE), Latvia (LV), Lithuania (LT), Hungary (HU), Poland (PL), Romania (RO) and Slovakia (SK); Denmark (DK) and Sweden (SE). Changes for the variables on the x-axis are the difference between 2004-08 and 1998-2003 averages.

The results are not presented for the all 23 EU countries, depending on data coverage and availability.

Sources: Eurostat and LFS microdata, authors' computations.

Figure 5: Mobility index vs. structure indicators

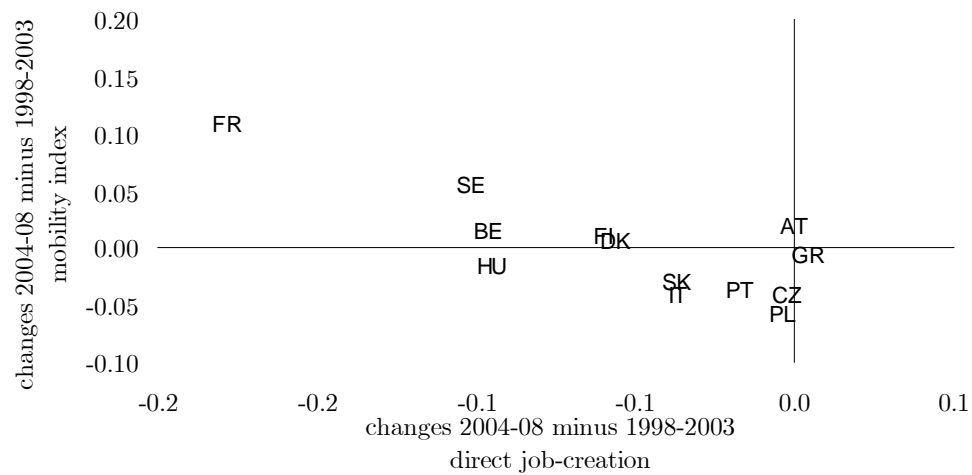
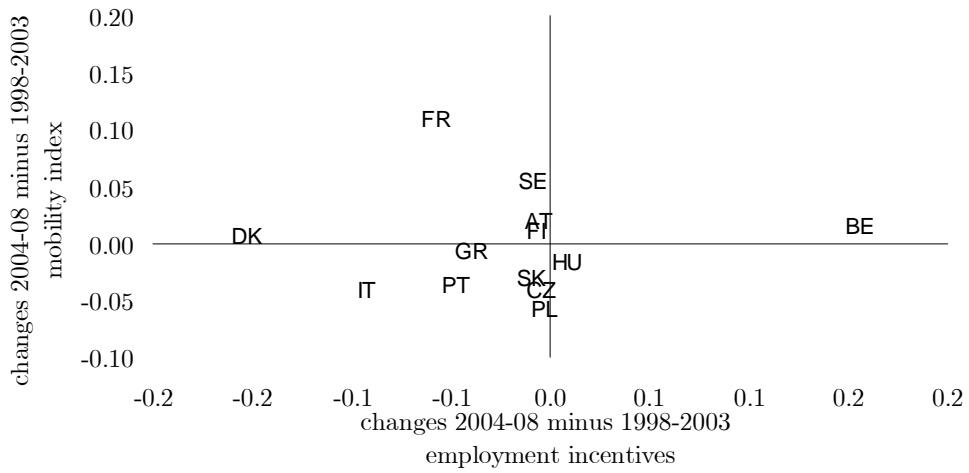
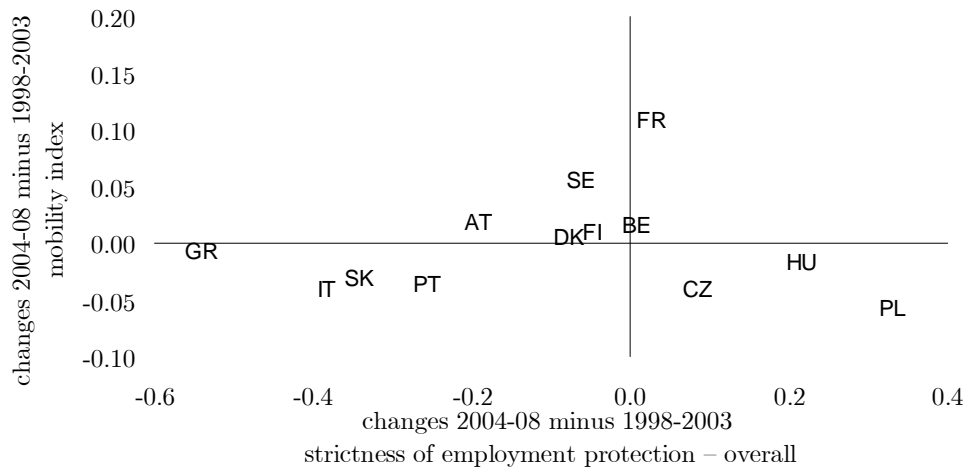
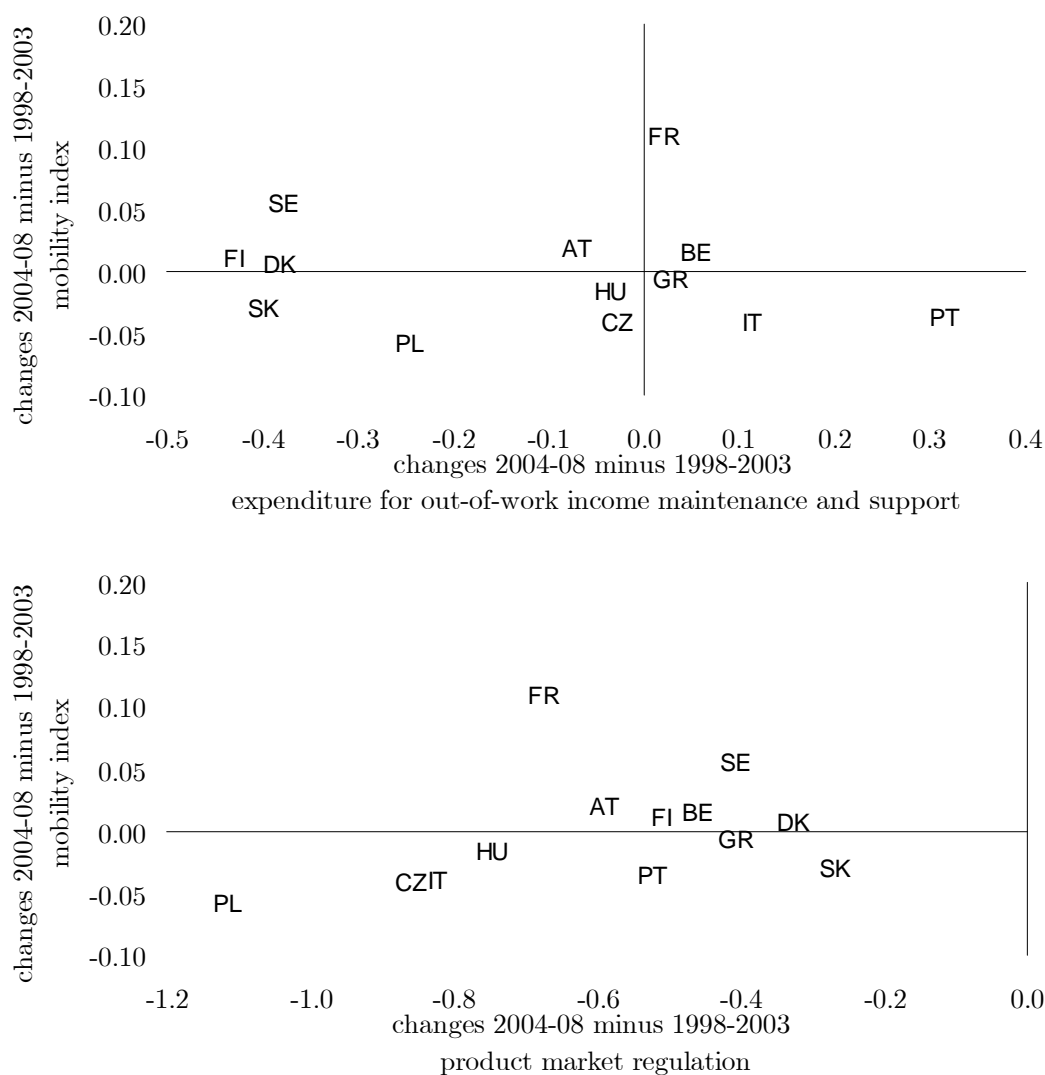


Figure 5(continued): Mobility index vs. structure indicators



Notes: Where available, the chart refers to pooled transition probabilities results for 23 EU countries. Spain (ES), Italy (IT), France (FR), the Netherlands (NL), Belgium (BE), Austria (AT), Cyprus (CY), Finland (FI), Greece (GR), Luxemburg (LU), Portugal (PT), Slovenia (SI); Czech Republic (CZ), Estonia (EE), Latvia (LV), Lithuania (LT), Hungary (HU), Poland (PL), Romania (RO) and Slovakia (SK); Denmark (DK) and Sweden (SE). Changes for the variables on the x-axis are the difference between 2004-08 and 1998-2003 averages. The expenditure on direct-job creation and out-of-work income maintenance and support are intended as a percentage of GDP. The results are not presented for the all 23 EU countries, depending on data coverage and availability.

Sources: OECD and LFS microdata, authors' computations.

4. Concluding remarks

This paper presented information on labour market mobility in 23 EU countries for the period 1998 to 2008 using Eurostat Labour Force Survey (LFS) data. The analysis presented evidence by country and worker group.

Transitions from unemployment and inactivity back into employment are found to be less frequent in the CEE EU and the euro area than in Denmark and Sweden. Moreover, in the euro area, Sweden, and, to a lesser extent, Denmark, the number of people remaining in unemployment decreased over the period 1998-2008 whereas this number increased in the average CEE EU countries. At the same time, however, successful labour market entries (from outside the labour market) increased in CEE EU countries, Denmark and Sweden.

Summary mobility measures for the periods 1998 – 2004 and 2004 – 2008 show a decrease in labour market mobility over time in the CEE EU countries and an increase in Denmark, Sweden and the euro area. This decline of labour market mobility in the CEE countries, while reflecting a stabilization of labour markets, may stem from a less efficient matching of individuals with jobs than in other countries, as evidenced by an increase in the probability to remain in unemployment. In contrast, in the euro area, Sweden, and to a lesser extent, Denmark, mobility increased over this period, essentially as the result of a fall in the probability of remaining in unemployment. All in all, the highest degree of labour market mobility among the countries covered in this paper is consistently observed in Spain, Luxemburg, the Netherlands, Denmark and Sweden, with these results mainly reflecting higher mobility of people below the age of 29, highly educated and female workers. We also find that mobility of all worker groups has generally increased over time in the euro area, Denmark and Sweden.

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Looking at some explanatory factors, the results suggest that countries who experienced an increase in mobility are also those which increased their percentage of time limited (e.g., temporary) contracts and part time work, and *vice versa*. However, looking at unemployment rates and some structure indicators the results provide a mixed picture, suggesting that the sense of mobility strongly varies across countries.²¹

²¹ As discussed in Section 2, also depending on the direction in which transitions across labour market statuses are observed – be it from unemployment to employment, from unemployment to inactivity and so on. The effectiveness of labour market measures and their interactions are likely to affect the degree of labour market turnover as well.

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